STATE LIBRARY OF PENNSYLVANIA
3 0144 00134178 3

~~R 389~~
~~43~~

~~56-94~~

CLASS BOOK

PHE 1.17/4

no 56-94 VOLUME

PENNSYLVANIA
STATE LIBRARY

Digitized by the Internet Archive
in 2015

https://archive.org/details/pennsylvaniaheal00penn

PHE1.17/4
no. 56-94

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 56. HARRISBURG, PA. MARCH, 1914.

THE STATE TUBERCULOSIS DISPENSARY AS A SOCIAL SERVICE IN PENNSYLVANIA.

In Pennsylvania the growth of general information as to the prevalence of Tuberculosis was accompanied by a wide spread feeling that vigorous measures must be taken to combat its inroads. In 1907, the State Government entered actively into the fight and mustered to the battle line the forces and prestige of the entire Commonwealth. Before that year the Legislature had donated considerable sums of money to assist various private agencies to erect and conduct Sanatoria for the treatment of Tuberculosis, but all of these efforts were of necessity sporadic and anything like a systematic effort to reach every portion of the State, had been lacking. Further in the face of the awful total of deaths, the existing agencies seemed paltry.

One of the most startling facts brought to light by the Government's earliest study of statistics, and which came as a shock to many, even of the better informed, was that Tuberculosis was rife in the country districts and that the rural population had a death rate from this disease far higher than had been generally supposed. A review of the situation in the rural districts in general showed that practically nothing was being done to stem this tide of sickness and death and that the well-meaning city workers were even doing something to increase it by sending the afflicted of the towns to live in the country. One bad feature of Tuberculosis in the country was that the delay in seeking medical attention and advice was even greater than in the city. The doctor was harder to reach and such things as Hospitals and free Dispensaries were not known. Despite the great increase of information as to Tuberculosis, comparatively little latter day knowledge had become common outside of the cities and even in them it was confined to a small proportion of the public. The disease was generally known but it was looked upon as strictly hereditary. Its causes were not understood and even among physicians there were few who honestly believed that it was ever curable.

Mindful of these conditions and authorized by the Legislature, the Governor and the Commissioner of Health proceeding together undertook the erection of Sanatoria and a system of Dispensaries for the free treatment of the tuberculous poor, and began a State wide program of investigation and of education as to the causes of Tuberculosis and the means of avoidance and cure. In establishing the system of Dispensaries, the Department had for guidance, the experience of a number of scattered Dispensaries, both in Europe and in this country; but few or none of these were outside the bounds of large cities, and nowhere did there exist such a system or chain of institutions as was contemplated. Both Sanatoria and Dispensaries were believed to be essential because of the number of persons suffering from the disease, who needed not only sanitary instruction, but actual care and help. Probably no instruction is so welcome as that which is accompanied by the means to put it into practical operation. The order to take extra food is of little value to the poor man already unable to procure sufficient to satisfy his hunger, unless with it comes the food itself and therefore when planning the Dispensary system the Department included as features of the scheme, the supplying of patients with supplemental food as well as with advanced medical treatment and instructions as to how to live. The doctor prescribes the proper regime of life and of diet; he directs and the nurse follows his instructions into the homes. To some extent both act in a strictly professional capacity, but as the Dispensaries of the Department have become more firmly established they have become centres for social advancement and the doctors and nurses have become social workers. Without exception the most successful Dispensaries are those in which greatest attention is given to the living conditions of the patients. Tuberculosis is a social disease and while the individual may often be benefitted by medical treatment, the trouble can only be prevented or cured by good hygiene, and if its inroads are to be limited, we believe our efforts must be along this line. Despite every humanly possible precaution, every one sooner or later comes in contact with the bacillus responsible for Tuberculosis. The further development of this bacillus within our bodies, depends very largely upon the conditions which it finds prevailing. If the system is in a weakened condition, the bacillus finds itself in favorable soil. It multiplies and flourishes until the unfortunate host is a victim of the disease, Tuberculosis. If, on the other hand, it finds the system well nourished and properly guarded, its reception is a lively one and its stay short. The vital forces of a healthy body soon wipe out of existence the would be destroyers. Our Dispensaries, especially through our nurses, constantly labor to impress this upon the people and to teach them how to improve and maintain this greatly to be desired resistance.

With these points in mind, the Pennsylvania State Department of Health in July 1907—less than six weeks after the appropriation became available, opened the first Dispensary of its system, and from that time, there was no pause until one such had been established in each of the sixty-seven counties of the Commonwealth. The enrollment of patients steadily grew and as time passed, there came to the Commissioner an increasing number of petitions for more Dispensaries in sections thickly populated and at a distance from those already in operation. In October, 1908, the order was given to add forty to the number. The response of the people to this extended offer of help almost immediately proved its wisdom, the number of patients enrolled showing a steady growth. Since 1909 the Dispensary roll has shown a general average of approximately nine thousand patients actually under treatment. The public press was called upon to spread the news, letters were sent to civic clubs, churches, employers of labor, and to many others who might be in a position to tell indigent sufferers where to go to obtain help. The general scheme of operation of a Dispensary was to become known to the community and by the high professional and moral standing of its staff of physicians and nurses, at once to compel the confidence of the people. Then when applicants for relief appeared the staff took up the study of their individual needs, physical and social. The questions to be asked were carefully considered and were so formulated as to bring out enough information to give the Dispensary Chief a fair working knowledge of the applicant's character, his home life, his ailments, and his necessities. Circulars of information and advice had been prepared, but both physicians and nurses were urgently instructed not to rely too greatly upon them but to take up individually with each one his particular case. At first the Dispensary gave to those who seemed unable to secure sufficient nourishment a supply of milk or of eggs or both—such questions being entrusted to the good judgment of the physician. Later it was decided to add Olive Oil to the list of supplementary food supplies, and still later after a careful study of their value the eggs were taken off the list. After further study Olive Oil was also dropped and Cotton Seed Oil given in its place. The Dispensaries act as feeders for the Sanatoria and they also become again the guardians of our patients and continue to watch over them after they leave the Sanatoria. Every six months the Dispensary sends to the Sanatorium, a carefully compiled written report showing the condition of every discharged patient. Thus the Department obtains a knowledge of the condition and whereabouts of all former patients with whom it has been possible to keep in touch and strives to impress upon them the fact that they are still objects of interest and concern and to warn the careless that precautions are still necessary.

Well trained, earnest visiting nurses are essential to the success of Tuberculosis Dispensary work. Our nurses and physicians co-operate and neither is fully efficient without the assistance of the other. It is the place of the physician to determine the physical condition of the patient and to decide what is best for the individual. It is the sphere of the nurse to go into the home and there to make a careful investigation. Her report of this investigation in the hands of the physician, frequently has great influence upon his treatment of the case. While Tuberculosis is infectious and can be passed from one adult to another, yet the infection is not especially virulent and very frequently exists in the body for years without in any way, becoming apparent and then only makes its presence known after hardship, overwork, bad habits or excesses have contrived to materially reduce the general resistance of the system. Children more easily than adults become victims because their powers of resistance are not yet fully developed. The nurse goes into each home, she becomes acquainted with the entire household, she wins the family confidence and by her persistent tact and good sense, is often able to completely change the family habits. She not only tells her charges of the benefits of fresh air and sunlight and cleanliness but she

245937

studies out the means by which these may be obtained. In many instances the problem requires no small amount of thought and considerable ingenuity, for unfortunately many houses in the country as well as in the city are planned and built without any due consideration of these prime necessities.

In the matter of the economical purchase and particularly the proper cooking of food, the Dispensary nurse finds a larger field for work. Frying is the method of cooking in almost universal use among our patients. It is hard to convince them that any other is worthy of consideration and it takes patience and persistence to educate their palates to a liking for food prepared in other ways. Many housekeepers by following the suggestions of our nurses have been able to reduce the expense of food and at the same time to increase its value as nourishment. The repeated visits are a constant spur to the whole family to continue the improved course of life and they prevent many from wittingly or unconsciously returning to their old vicious habits. Sometimes decent living in their present houses is an impossibility and here the nurse with a thorough knowledge of the neighborhood becomes the real estate agent of the family and having discovered a better domicile, is able to persuade her charges to move into it. She secures disinfection after removal or death, so that newcomers to an infected house escape the risks which would otherwise be theirs. Many times the nurse becomes an employment agency for her charges. Thousands of our patients have been taken from positions entailing the handling of food stuffs and have been placed in positions where they cannot thus endanger others. Each sufferer is taught that he is a menace to every one about him so long as he is guilty of careless habits. By her success in finding employment for an idle member of the family, a Dispensary nurse directly helps to establish the whole family upon a better economic footing, and there are many cases on record where such families have become so prosperous as to put them entirely beyond the need of public assistance. Not a few of our nurses have given from their own slender incomes to help supply the needs of their patients. Their influence is personal, and it is social as well as official. In fact to be a successful Tuberculosis Dispensary nurse, a woman must have an enthusiastic desire to help her fellow-men. The nurse who works simply for her monthly salary, never is and never can be a success. As a matter of protection to the Commonwealth, our nurses carefully investigate the financial circumstances of each applicant and a satisfactory report on each one must be filed before he can be fully admitted to treatment. It has been a matter of great satisfaction, that so few of the unworthy have been found trying to take advantage of the public in this way.

Another official duty of the nurse, and one which we consider to be a very important duty, is the hunt for new patients. In every home she is instructed to see as many of the inmates as she possibly can, and she must take especial pains to see the children. It has become no surprise for her to discover signs of ill health in other members of the family, and by her persuasions to be the means of the early beginning of treatment where previously there had been no suspicion of disease or an insufficient realization of its gravity. The children furnish an especially fertile field for her efforts and it has been the experience of every one of our large Dispensaries that in a majority of cases where applicants are members of families in which there are children, some of the little ones are in need of treatment.

We believe that our Dispensaries are doing a great work and that they are justifying their existence by tangible results, even though the greatest part of their value lies along lines which can be made apparent only after the passage of years. Between July 1907 and March 31, 1914 our Dispensary physicians examined 86,697 applicants for treatment. Of these 68,107 were found tuberculous and enrolled as patients and those admitted to treatment made 729,915 visits to the Dispensaries. Our nurses made 695,129 visits in the homes of patients. During that period 11,811 patients were sent to Sanatoria, and 4,196 were discharged from the dispensary service with the progress of the disease arrested. Many of these cases were more than "arrested" and have become actual cures. Many more patients are still being held on the Dispensary roll in order that the arrest may be made more surely permanent.

The physicians and the nurses of the Dispensaries get into the innermost home life of our people and if education such as they give can be counted upon to accomplish anything, it is certainly a powerful influence for good. It is not like a single lecture or visit where the information given is but partially understood and quickly forgotten. It is a constantly repeated schooling, not only by precept but by practical demonstration. It has already been demonstrated that it is reducing the mortality from Tuberculosis and that in many centres it has improved the standard of living and also the morals of our patients.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Methods of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	Mar., 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov. 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	Mar., 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	Mar., 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Life at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	Mar., 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	Mar., 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.

Pennsylvania Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 57. HARRISBURG, PA. MAY, 1914.

INSANITARY BATHTUBS AND LAVATORIES.

The plunge bath is almost universally used throughout the United States. Bathtubs are to be found in all hotels, apartment houses and homes in cities, and they are rapidly being introduced into houses in our rural and farming communities.

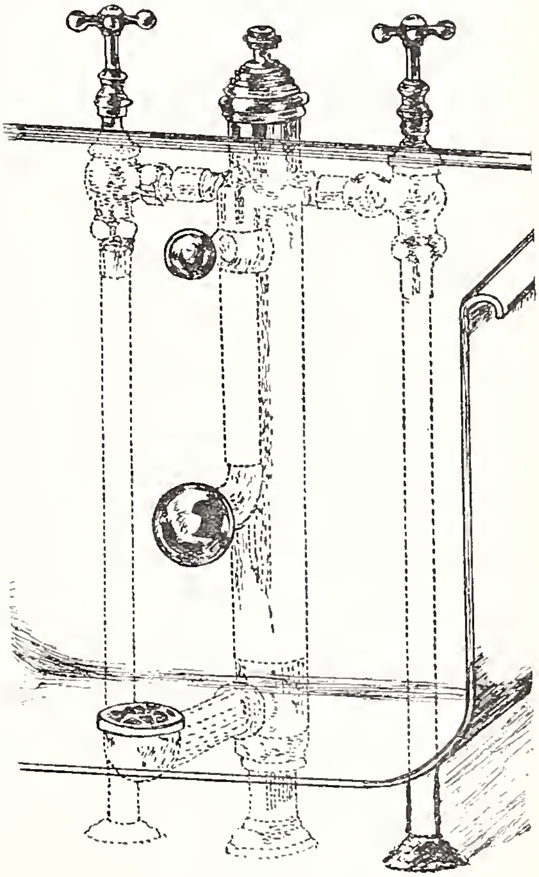


Figure 1.

Plumbing in America has shown a tendency to become more of an art than a sanitary science. Lavatories or wash basins are often of beautiful china set in rare marble or are solid porcelain, presenting an immaculate appearance. Bathtubs are frequently made of solid porcelain, looking equally immaculate. The bottoms, sides and ends of the bathtubs are a glistening white, the only break being the hole or mouth of the waste pipe in the bottom of the fixture near one end and sometimes a bell shaped piece of metal or white enamel covering the twin spigots for hot and cold water. (Figure 1). The cover is placed low down in the tub so that when the water is running it makes little or no noise. This style of spigot is insanitary and dangerous to health yet it is, as has been said, noiseless, neat and pretty. The water spouts out from under the gong shaped cover of the concealed spigots and soon fills the tub which is to be used for bathing purposes, carrying with it from the inside of the gong shaped cover such bits of scarf skin, dirt and possibly disease germs as may have settled on the inner side of this covering when the dirty water used by the last bather receded and the tub emptied. This marks one of the danger spots in modern plumbing.

The second bad fixture that is found in some of the most beautiful and expensive plumbing is the hidden plug used to stop the waste pipe so as to dam the water up in the tub or lavatory (wash-stand).

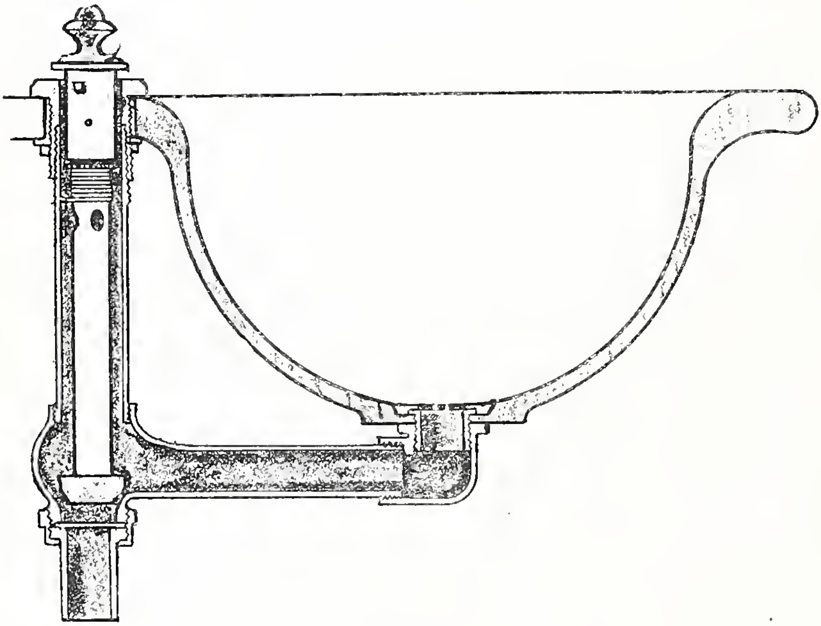


Figure 2.

This plug shuts the waste pipe off several inches back from the opening of the pipe in the fixture as shown in Figure 2. This leaves a piece of waste pipe leading from a tub open at all times. As the dirty water flows from the bathtub or lavatory to the stop, it deposits dirt along its course. With this condition present the tub or the washbowl may be cleansed but the piece of waste pipe reaching out as far as the plug cannot well be cleansed. The moment the plug is again let down in the waste pipe and the water starts to refill the bathtub or basin, it flows into this waste pipe and gradually dams up until it flows back into the vessel carrying with it some of the filth that had been collected along the sides of this piece of waste pipe. During the process of bathing the water and waste matter rising from the pipe is thoroughly mixed with the water in the tub or basin, and if it happens to be carrying disease producing germs, the bather may become infected. The plumber calls this movement of the water through the dirty waste pipe back into the bathtub "lemonading." This mysterious and neat construction in modern bathroom fixtures should be forbidden by law.

An insanitary fixture found in the cheaper grades of bathtubs and lavatories is the endless chain made of pieces of flat metal, each linked upon the other in such a way as to form between the links an ideal space for collecting dirt. These chains become filthy and may often contain disease producing organisms, and therefore this style of plugging waste pipes should be abandoned. Any chain is objectionable.

There are a number of sanitary devices to take the place of these dangerous fixtures that will enable the bather to fully cleanse the tub or lavatory and guard against disease. One old-fashioned method which is sanitary is to place a standpipe in the waste pipe. This prevents the water from flowing out until it gets to a sufficient depth for the bather and then takes care of the overflow by discharging it through the top of the stand pipe into the waste. (See Figure 3).

Another of the numerous sanitary devices is shown in Figure 4, in which a round flat stopper fits into the mouth of the waste pipe level with the bottom of the bathtub or basin, and by a mechanical arrangement by the turn of a handle may be raised from the mouth of the pipe sufficiently to permit the water to escape, then by a reverse movement of the handle the stopper falls back of its own weight closing the mouth of the waste pipe and permitting the tub or basin to be cleansed and made sanitary for the next bather.

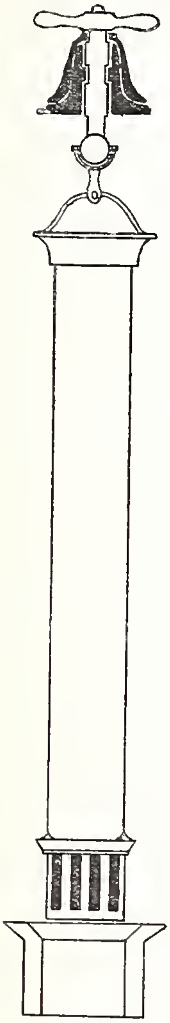


Figure 3.

The overflow pipe should open directly into the bathtub or lavatory at the height fixed to give the right depth of water for bathing. This pipe should lead to and empty into the waste pipe beyond the plug or stopper as near the mouth of the overflow as possible.

This question of the insanitary devices for filling bathtubs and washbasins and discharging the dirty water after use is a very serious one and bears directly upon our health and should be taken up by the people so that they may under-

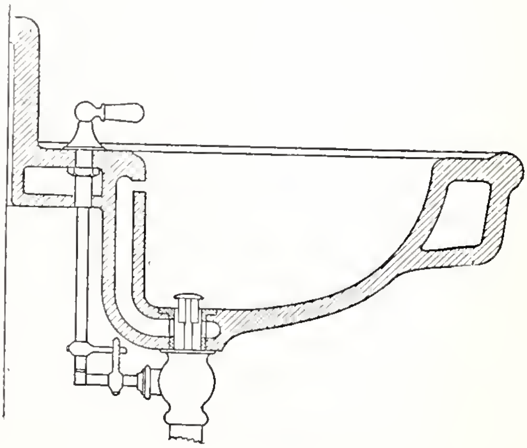


Figure 4.

stand their objectionable features and that they may urge the Representatives in the General Assembly to pass an Act forbidding such insanitary construction.

Our lawmakers in Pennsylvania and many other States have of late been very active in passing good sanitary laws and making liberal appropriations to protect and improve the health of their constituents, yet there is much left for them to do in the line of prevention. This one question relating to the construction of the waste pipes from our toilet fixtures may have an influence upon the spread of the following diseases:—

Venereal Diseases: Gonorrhea, syphilis, chancroids.

Intestinal Diseases: Typhoid fever, bacillary dysentery.

Eye and Ear Diseases: Acute contagious conjunctivitis, trachoma, suppurative otitis media.

Miscellaneous Infection: Impetigo contagiosa, erythema multiforme, furunculosis, scabies, ring worm, favus, tuberculosis, lupus, anthrax, erysipelas, and pemphigus.

Under Venereal Diseases there is a great deal of literature that would seem to prove the possibility of their transmission through the water in swimming pools, hence the possibility would exist in bathtubs and lavatories. Skutch reported gonorrheal vulvovaginitis in 236 girls using a common swimming pool at Posen, but each having her individual towel.

I have not found any direct report of the transmission of syphilis or of the virus of soft chancres in this way, yet it would seem possible for each to be transmitted. Hertzka and Sticker have demonstrated that the bacillus prodigiosus can reach the mucous membrane of women while bathing and perhaps cause vaginitis.

Intestinal Diseases—numerous outbreaks of typhoid fever have been reported from bathing in typhoid polluted waters. A carrier case might pollute a bathtub or other plumbing fixture.

Pfuhl reports an outbreak of forty-nine cases at Altona, on the Elbe. Jäger reports an outbreak of proteus infection among soldiers traceable to fowl disease in a tributary of the Danube.

Shiga reported 413 cases of dysentery in the village of Miturka from bathing in a stream in which the bedding of a person dead of the disease had been washed.

Eye and Ear Infection—Fehr reports twenty cases of eye infection among patrons of a public swimming pool. Schultz reports eighteen cases of trachoma among young men using a common swimming pool. Cobb reports two cases of ear infection.

Miscellaneous Infections—there is seemingly considerable possibility of impetigo contagiosa, furunculosis, erythema multiforme being transmitted through bath water, and probably scabies, ring worm and favus may be so transmitted; at least laboratory experiments seem to bear this interpretation. Tuberculosis of the lungs and lupus might be transmitted by means of bath water and possibly anthrax, erysipelas and pemphigus.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	Mar., 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	Mar., 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	Mar., 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	Mar., 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	Mar., 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	April, 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 58. HARRISBURG, PA. JUNE, 1914.

ON HOUSING

There is unquestionably at the present time a very wide spread interest in Pennsylvania in the problem of housing. Innumerable organizations have taken up this question with much enthusiasm but not always with a clear notion of the true nature of the work to be done and often with little knowledge of what has already been done. Particularly unfortunate is the very general misconception of the relation of the State Department of Health to these questions and concerning the work which it should do through the new Bureau of Housing.

At the progressive session of the General Assembly of the year 1905 certain Acts to protect the health of the people were passed. It created the State Department of Health and placed grave responsibilities upon the Commissioner and his Advisory Board. Besides the specific clauses of this Act (No. 218, P. L. 1905) the following sections were included:

"Section 8. It shall be the duty of the Commissioner of Health to protect the health of the people of the State, and to determine and employ the most efficient and practical means for the prevention and suppression of disease.

"The Commissioner of Health shall cause examination to be made of nuisances or questions affecting the security of life and health in any locality, and for that purpose the Commissioner, and any person authorized by him so to do, may, without fee or hindrance, enter, examine and survey all grounds, vehicles, apartments, buildings, and places within the State, and all persons so authorized by him shall have the powers and authority conferred by law upon constables."

"Section 9. The Commissioner shall have power and authority to order nuisances, detrimental to the public health, or the causes of disease and mortality, to be abated and removed, and to enforce quarantine regulations.

"If the owner or occupant of any premises, whereon any nuisance detrimental to public health exists, fails to comply with any order of the Commissioner of Health for the abatement or removal thereof, the Commissioner, his agents or employes, may enter upon the premises to which such order relates and abate or remove such nuisance.

"The expense of such abatement or removal shall be paid by the owner or occupant of such premises, or by the person who caused or maintained such nuisance, and such expense shall be a lien upon the land, upon which the nuisance was maintained; for which a claim may be filed by the Commissioner, in the name of the Commonwealth, in the court of Common Pleas for the county in which the lands are, within six months from the date of completion of the work of abatement or removal, subject to the same proceedings for entry or revival of judgment and execution as are provided by law for other municipal liens. The Commissioner may also maintain an action against such owner or occupant, in the name of the Commonwealth, to recover the amount of such expense, in the same way as debts of like amount are by law recoverable; and the same, when recovered either by enforcement of the lien or by the personal action, shall be paid to the State Treasurer, to be held and used as the funds of the Department of Health; but a final recovery of the amount, in one proceeding, shall be a bar to the further continuance of the other: Provided, however, That this Act shall not apply to waters pumped or flowing from coal mines and tanneries."

The Act to guard the waters of the State (No. 182, P. L. 1905) was so framed as to place this work under scientific, medical and engineering supervision to the end that our people might be supplied with potable water for domestic purposes. It will be observed that in the act quoted great discretion was given to the Commissioner and the fullest inspection of housing conditions was already made possible.

The locating of buildings in relation to our streams regardless of the topography and the geological formation has made proper housing a hard problem. Owing to the fact that the first power used for manufacturing was water, the mills and the homes for those working in the industrial plants were built close to the streams, some of them on clay formations and almost on a level with the streams, so that the disposal of sewage was a difficult task. The people therefore followed the line of least resistance and ran their sewage directly into the streams. This went on while the population increased and modern conveniences were introduced, until the volume of sewage was so enlarged that the disposal of it was a great economic problem. So great was the problem that the people actually suffered death from typhoid fever before they would spend their energies and money on some device to prevent this disease.

When building a home, a mill, a barn or almost any kind of a building the first thing to consider is the site and its relation to a water supply and the possibility of proper disposal of the sewage therefrom.

Just here it may be well to call the attention of the reader to the fact that all the work about to be reviewed bears very directly upon bad housing or the machinery primarily made to overcome other evils that can also be economically used in our housing work.

When the State Department of Health began its work we had 3,917 deaths a year from typhoid fever which has now been cut down seventy per cent. and will with the help of the public go on down to almost nothing. Some may think this work of taking the raw death dealing sewage out of the streams has gone slowly. That is so, but why? It is because we found it impossible to take the poisons out of the streams until the people were educated. We have learned that under a representative form of government we cannot hope to enforce laws which are much in advance of the intelligence of the people. Notwithstanding our educational work and the results that have saved so many thousands of lives and permitted many of us to be here today who otherwise would be under the little green tent, there were not less than four Bills introduced at the last session of the Legislature to repeal the Purity of Water Act.

In the session in which the Department of Health was created the Assembly also passed the first Act which enabled us to take an account of stock in this great corporation with eight millions of people in its membership. This was a law creating the Bureau of Vital and Morbidity Statistics. Then for the first time in the history of this great Commonwealth was there any work done that would inform us how many of us were dying every year and what we were dying of. Since then the facts collected make us wise as to what typhoid fever was doing, and where it was and why it was. With these facts in our possession we know how to fight the great battle against disease. We learned through this Bureau how many little children were being taken from us by diphtheria, and with this horrible death roll before us the State wakened up, and established for the distribution of antitoxin for its cure and prevention 671 stations through which the poor all over the Commonwealth can obtain this great remedy for nothing. From these 671 storehouses for our ammunition to fight diphtheria 176,572 packages have been given out and with the use of this diphtheria antitoxin the deaths have been reduced ninety per cent. There are no words in the English language to express the amount of sorrow and suffering this one agent has saved, let alone the stability these American born children are going to bring to this representative form of government. We never forget our parents notwithstanding we go away and marry to have homes of our own or we migrate and marry elsewhere or become citizens of some other than our mother country. Let us save our babies and populate our State with our own children. The health work to save the babies has received the approval of every mother in the State. By the time the broad work inaugurated under the Acts of Assembly mentioned was well under way along came another life saving Act. This has given the State three magnificent sanatoria for the consumptives—one in the West, one in the South centre, and one in the East—and with these 115 dispensaries. Under the succession of Acts appropriating money for this tuberculosis work we have been able to build up a system which is today treating and looking after 10,000 of our people suffering with tuberculosis and giving us an insight into the poorest housing conditions in the Commonwealth.

This additional organization having been accomplished, and the work carried on sufficiently long for statistics to show that our battle line was advancing slowly but surely, the School Code was

245937

enacted in the year 1911, which gave the Health Department an opportunity to make medical examination of the schools and advise parents what could be done to make their children see, make them hear, and make them healthy instead of remaining sickly. This Code also gave us a specific power over the school buildings. This, like all the additional work that has been placed under the Department's charge, dovetailed in with our other work that was being done by our little army of workers stationed all over the State. Not only has this growing system under a Department divided into its respective sections proven economical from the standpoint of money expenditure, because the same overhead charges are able to carry so much, but there has been a saving of duplication of machinery and the overlapping of responsibilities has been prevented.

In the organization of the Department we have contemplated the work of other State Departments and realized that they should all work as one great whole. This was beautifully demonstrated at Austin when the great dam burst. Then His Excellency, John K. Tener, requested the Department to take charge of the situation. The organization enabled the State to have some of her officers there within a couple of hours after the breaking of the dam. Within a few hours in addition to the force supplied by the Department of Health, the State Constabulary, the National Guard, the Highway Department, the Board of Charities, were all represented and we all worked together like a well regulated family until the work was done. During the entire time of our being on the ground together there was not the least discord, and after the work was done, there was no comeback in the form of an epidemic of disease of any kind. I have mentioned this that our people may know how efficient the various departments of the State are and how unselfishly the labor for the best interests of the people, entirely free from the petty jealousies which we read about in armies and associations of all kinds.

In the year 1913 Representative Watson prepared a most creditable Bill to give the Department of Health more specific powers over the housing in Pennsylvania. This commendable piece of legislation did not carry with it any appropriation, yet the law was so framed that the work could be done by the Department under its general appropriation. That appropriation did not contemplate any such extended work on housing. We, however, realized the importance of the work proposed to be done under the law and its close relationship to our tuberculosis work and general medical work already well organized and producing gratifying results. The various lines of our activities were compared with the housing and weighed by a table of their relative importance. This resulted in our cutting out some of our field work that we might have money to enable the Bureau of Housing to work in harmony with our other divisions so as to save overhead charges and transportation. Under this organization the present Engineering Division will look after the water supply and the disposal of sewage from houses. The work being done by our little army of nurses, visiting the homes of our poor, tuberculous people, will relieve the inspectors of the Bureau of a considerable number of the inspections they otherwise would have to perform. These nurses are stationed in every county of the State. The Bureau will also work in harmony with the county medical officers who have their men visiting all the houses in the townships and many of the municipalities where communicable diseases occur, independent of the school houses, prisons, places of industry, churches, and camps both for homes or sport and industries.

Our educational work through our traveling exhibit has also to be considered, as it is able to do the didactic teaching and demonstrate to its classes by models and pictures different devices for ventilation, etc.

Through our various agencies spread over the entire State much has been done and is being done to improve our housing conditions. Housing conditions must have a broad definition. To make thorough our labors relating to this duty that has been placed upon us we must follow the individual, man or woman, child or adult, through all the twenty-four hours of the day. First, where he sleeps is a good place to begin as sleeping is the thing man does most of when as a child he begins his independent life. Then, the places where he eats and the kind of food he consumes. The places where he plays, the school room in which he is taught, the church buildings in which he worships, the places in which he works, and the hospitals to which at times he is compelled to go. And let me say also in passing that if he will listen to the different State and Federal teachings and exercise his will power and set aside his foolish superstitions, he will spend less time in the hospitals. He will be much happier and that which is now work will become play and his home life will often be made much more enjoyable.

The question of water supplies for domestic purposes is of the gravest importance and the handling of this question is growing more difficult as the population of our State increases and the swamps are drained. In doing this we destroy our natural reservoirs and permit the rains to rush off to the sea. As the individual water supplies become fewer and the public supplies more used the surface streams will be more and more in demand. This important question is, however, already taken care of by the Division of Sanitary Engineering, therefore it need not be considered in the work of the Housing Bureau.

The nurses visiting the homes of the poor consumptives have already taught thousands of our people the necessity of cleanliness of person and dwelling. They have instructed them regarding the importance of ventilation and explained simple devices to ventilate and heat their houses. Outdoor sleeping rooms have been designed and used to great advantage. The families taught have become missionaries. This educational work has been encouraged by our literature, newspaper articles, Bulletins, special circulars, magazines, and by the clergy and lectures.

While this has been done for the housing the nurses have taken advantage of the opportunity to teach the poor what kind of foodstuffs should be eaten, that the demands of nature be satisfied, both for the child and the adult, and also for the second childhood of the aged. They found many trying to live on starch alone. Great numbers of the children and adults were half starved because of their ignorance as to what kind of foodstuffs to eat. In this condition you could not get them properly to ventilate their homes, as they could not resist the cold. The follow up visits demonstrated that the children grew, took on fat and muscle, and they soon had enough active combustion to live comfortably in well ventilated homes. Independent of the physical changes the nurses witnessed great phychological results. They found some of their patients anarchists and left them good loyal citizens. They had come to realize that the Government was a good friend and not an enemy. They took an interest in their homes and we proved what I have always maintained, that the housing itself was not as bad as often taught and that the first thing for the Government to do would be to teach the people how to use the houses they already have. People in all circles of society need to be taught the necessity of fresh air and the value of sunlight.

In our rules and regulations under our new Bureau we must provide for the abundant admission of fresh air in connection with any form of heating. Today thousands of homes, offices and buildings of the better sort used for sundry purposes are heated by direct steam or hot water radiation given off in tightly closed rooms, windows all down and provided with weather strips. This is a great coal saver but a death trap that insidiously brings to the occupants ill health and early death. The life supporting qualities of the air soon become used up under such circumstances. There must be a certain proportion of indirect heat or a forced ventilation, or a device for a gravity system, otherwise we are going to become a physically weak people through our effort to save or make money by cheap heating systems. That is what goes on in dwellings such as are commonly supposed to lie outside the limits of any problem of housing. The conditions in the humbler homes and in the smaller workshops are even worse, for here the heating is often done by stove or furnace in such a fashion as to preclude proper ventilation and with the direct introduction of noxious gases. We must teach that the gases escaping from our coal fires are poisonous. The carbon monoxide which shows itself as the blue flame burning over the coal just after it is put on the fire is very dangerous. One per cent. of that gas will kill a horse in two minutes. This gas is odorless but the sulphurous gas which escapes with it is irritating and will give notice of the escaping gases. It is the abundance of this substance in the modern water gas now so commonly used that makes this gas so dangerous when it escapes.

Often this gas gets through the house from a hot air furnace, or hot water or steam boiler fire in the cellar. This can be prevented if the person in charge of the fire will be careful when he takes the draft off by opening the fire door. It should only be opened to the limit of where the flame of a match or candle will still be drawn into the fire. If the door is opened beyond this point the gases will be drawn or diffused into the cellar and the warm cellar air thus polluted will be driven through the house. This same escape of gas often comes from a kitchen range when the cook takes the lid off to check the draft for the night. This, like the furnace door, should only be removed to the farthest point where the flame of a match or candle is still drawn into the fire.

The burning fire in stove or furnace or under the boiler is a consumer of oxygen and a producer of harmful gases besides the carbon monoxide, consequently adequate provision must be made for the removal of such gases and a supply of fresh air from the outside. All dwellings should have the maximum of windows so as to have the greatest possible movement of air. As far as possible day light should be freely admitted to every room. Naturally we cannot expect the sun to shine on all sides of a house but the rays of the sun should be let into the rooms regardless of the pigment or color in the carpets and furnishings. Tubercle bacilli and other germs of disease will die under the action of the sun's rays. Let the carpets fade! Better faded carpets than faded cheeks and graves too early filled.

While we cannot at this time undertake to discuss all the points which a house inspector of the Bureau will be expected to examine there are one or two more to which attention may be directed. In entering houses for inspection after the surroundings have been studied, it is the cellar which should be examined first of all because the cellar air will circulate through the dwelling in the vast majority of cases. Another reason is that it is out of sight of visitors and therefore becomes the rubbish hole of the house. Space is lacking to dwell upon the conditions which have been found in the cellars of some of the largest and finest mansions of the very well to do. The cellar floor should always be water proof and comparatively air proof. In some geological formations this in necessary on account of ground water and in cities the ground air should be shut out of the dwelling. Where the dwellings are at all close together or near the street as in towns and villages the cellar windows should be screened with cheese cloth. All the windows should be screened against flies as they are carriers of disease.

There is need of legislative action for the better control of plumbing. Many of the devices now extensively used in our dwellings are essentially insanitary and should be condemned and forbidden. Some of these questions have been considered in a recent Bulletin of the Department.

Frequently one finds little wooden shacks loosely constructed with plenty of knot holes and furnished with large sashes that are more sanitary than some of the large houses. Our people in all circles of life need to be educated in health measures. In the last few years small houses have been much improved in appearance, which has its moral effect, yet, these small dwellings are too often heated with direct steam or hot water plants. The old shacks when kept clean were often more healthful. Some of the foreigners who come to this country for a short time with the idea of saving all they make so that they may return home with their little fortunes, will have to be deprived of the miserable tenement house accommodations as they are breeders of disease. In some of these places the mattresses never get cold as one shift of sleepers follows close on the heels of the other. Such housing will have to be broken up and better homes built. Sometimes it is very discouraging to try and get such huddlers into better homes as they prefer living in dirty, badly ventilated places.

Some of the large industries are doing much to improve their people in their ways of living.

If we can succeed in teaching the people to avoid excesses such as the abuse of alcohol, those interested and responsible for good housing will have much less work to do.

There is another aspect of these questions which calls for a brief comment. It is a common view of those who labor for the social uplift that the housing problem relates chiefly or only to the slums and the very poor. Even the law establishing a Bureau of Housing appears to be based upon a similar view since it directs attention explicitely to "overcrowded and unsanitary tenements, boarding and lodging-houses." True it is that much danger to health lurks in dwellings of this kind, but it is a great mistake to suppose for a moment that this is the only kind of harmful housing. In thousands of other houses may be found conditions which constantly tend to weaken the occupants doing all the more damage because it is done insidiously. Just what this damage may be it is hard to define because they who suffer it are more or less removed from the realm of the ordinary social worker. Nor let it be supposed that the limits of the housing problem have been reached when we get among those who are in some sense well to do. The fact is that the problem of sanitary housing is really a problem of practically every social stratum and the urgency of the solution increases as we go downwards merely because of the increasing numbers of those immediately affected. The final and complete solution will be reached by educative processes and not merely by legislative enactment and police regulation.

Along with the effort to improve the housing of our fellows we should not forget to exert ourselves to teach the advantages to be gained by paying attention to the things which will prevent disease. It will not only add to the happiness and morals of our people but it will greatly add to our productive power and enable us to introduce the products of our labor in foreign countries.

We must awaken to the fact that we are living on our principal, such as coal, rock oil, natural gas and other natural deposits, which are fast being used up. We must begin to depend upon our interest, by producing more through our industries.

In doing our sanitary work we must ever have the economy of our measures in view or we shall increase the cost of living.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspector of School Children.
9.	Mar., 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	Mar., 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it develops, Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	Mar., 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912.	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	Mar., 1913.	The Relation of the Undertaker to the Public Health.
45.	April, 1913.	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913.	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	Mar., 1914.	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	April, 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 59. HARRISBURG, PA. JULY, 1914.

MEDICAL AND SANITARY INSPECTION OF SCHOOLS OF FOURTH CLASS DISTRICTS IN PENNSYLVANIA.

About fifteen years ago systematic medical inspection of public schools was first undertaken in America. European work of this character only antedates our American activities by a few years. The earliest work of American health authorities in this line was done more with the thought of preventing and lessening illness from the acute contagious diseases and more because of the desire of the health officer to cut down the morbidity rate in communicable diseases among children of school age than from the higher and better motive of improving the race.

European workers in this field seemed to see from the first the possibilities of the work in improving the physical conditions of children and promoting a more regular attendance on school work by lessening the absences from preventable illness, but also gave their attention quite as much to the rearing of a sturdier stock of school children.

In Pennsylvania to-day public health workers and educators are as much concerned with the conservation of child life and with the building up of a sturdier race of Americans as with the immediate results of lessening communicable disease and lessening the mortality rates throughout the Commonwealth. While health authorities always keep in mind those important phases of medical inspection, the tremendous waste of life and the enormous waste of time and money due to preventable illness, they also constantly keep in mind that the most important phase of medical inspection deals with the broad problem of school hygiene, the detection and correction of defects which retard the progress, the defects which not only retard one or two of a class but may waste a great amount of the teacher's effort and much time of the sound members of the class.

The aim of medical effort to-day is to surround the school child with all the modern sanitary appliances that are helpful in school life, and to remove all insanitary evils which in any way interfere with school room efficiency; they see in such surroundings and practices an education of the child, and through the child of the parents, in right methods of living; they see in the detection of defects and the correction of them when possible, the removal of life handicaps thus conserving future health and increasing adult happiness and usefulness and adding to the earning capacity.

With these possibilities in mind the Department of Health first undertook medical inspection of rural school children during the spring term of 1910, making a trial inspection in 657 rural schools located in the second class townships of Cumberland, Dauphin, and Lancaster Counties, reaching a total of 14,434 pupils. Statewide inspection of rural school children was not undertaken until the beginning of the session of 1911-12, and was then done in compliance with Article 15 of the new School Code, adopted on the 18th day of May, 1911.

The School Code provides for compulsory medical inspection of all pupils attending the public schools at least once each year, except in districts of the third and fourth class, where the School Board may elect to have no such inspection. In third class districts, such resolution must be adopted prior to August 1st, in fourth class districts the resolution must be adopted and notice thereof sent to the State Department of Health prior to July 1st, in order to be effective for the ensuing school year.

In Pennsylvania each city, incorporated town (borough), or township constitutes a separate school district. First class school districts are districts having a population greater than 500,000; there are but two such districts in the Comonwealth, Philadelphia and Pittsburgh. Second class districts include municipalities having less than 500,000 population and more than 30,000; there are fourteen such districts in the Commonwealth. The third class districts include cities of the third class, boroughs, and the more densely populated townships having a population of less than 30,000 and more than 5,000; there are 186 such districts. Districts of the fourth class include all townships and organized boroughs, etc., having a population of less than 5,000; there are 2,365 fourth class districts. Under the law, independent districts may be established to meet peculiar needs of a neighborhood made up of residents in several different school districts. Relatively few such independent districts have been created.

In districts of the first and second class, where medical inspection is mandatory, or in third class districts, where it is optional, and resolutions have not been passed prior to the time fixed by the Code stating that inspection is not desired, the Commissioner of Health is required, thirty days after the opening of the school term, to appoint qualified inspectors, fix their compensation, and have the work performed at the expense of the school district, after written notice has been served on the school authorities, provided the district does not itself undertake the inspection.

In fourth class districts the Commissioner of Health is required to provide for a medical inspection of the children in the schools, except when the School Board has passed resolutions to the contrary and given due notice thereof to the Department of Health as the Code directs.

The expense of school medical inspection in first, second and third class districts is borne by the School District; in fourth class districts by the State Department of Health.

The School Code further provides that in the examination special attention shall be given to defective sight, defective hearing and other disabilities and defects, to be determined by the Commissioner of Health; it provides that written reports shall be sent to parents, through the teacher, concerning all pupils found to need medical or surgical attention. It is also required that the Medical Inspector shall make a careful sanitary inspection of all privies, water closets, urinals, cellars, water supplies, drinking vessels and utensils and will make such additional examinations of the sanitary condition of the school buildings and grounds as he deems necessary or as the regulations of the State Department of Health, or the local Board of Health, or the rules of the Board of School Directors require.

To be eligible for appointment as School Medical Inspector, physicians are required to be legally qualified and to have had two years' experience in the practice of medicine.

The School Medical Inspector, before beginning his work, in nearly all instances precedes it by a short talk to the pupils in the presence of the teacher in which he briefly outlines the objects of school medical inspection, refers incidentally to the methods used in making the examinations, and takes advantage of the visit to present as impressively as possible, and yet briefly, some of the evil results following defects found by the examiner and other essential truths of preventive medicine. At the conclusion of the inspection he advises the teacher concerning vicious seating, faulty posture of pupils, errors in ventilation, lighting, and cleaning, and makes suggestions for immediate correction and such readjustment as may be necessary to protect the pupils and give them the best sanitary surroundings.

In order to comply with the various requirements of the School Code, it became necessary to appoint, in addition to the medical men already engaged in Department work, a large corps of physicians and to publish a circular (See Page 14) giving them special instructions for the work; to design record forms for use by the Inspectors and to make plans for notifying parents of defects found in children and for notifying School Boards of defects in sanitary matters. The whole scheme had to be planned with due regard to thoroughness and to the varying needs of school districts entirely rural and of districts semi-urban in character, that is, the small towns.

The blank form which is reproduced on Page 20 is used in obtaining certain identification records relating to the school itself, the teacher, the district, etc.; for listing the name of the pupil, the name of the parents or guardian, the age, sex, color, nativity of the pupil, and for recording the examination.

In the columns under "Vision Tests" space is provided for recording the vision of each eye after separately testing by having the pupils read Snellen's types. Tests for astigmatism are not considered practicable in the school room, and are not included. In the columns marked "CD" corneal defects are noted, the figure 1 being inserted if the defect is slight, figure 2 if serious and figure 3 if the scar is sufficient to cause blindness.

In the columns under "Hearing Tests" space is provided for recording the hearing of each ear after they have been separately tested. In performing hearing tests a whisper at a distance of twenty feet is purposely used rather than the more refined tests practised in the office of the physician by using tuning forks or the tick of a watch. School teachers feel that the pupil who fails to understand the whispered voice at a distance of twenty-feet is the one who fails to understand the teacher's remarks and the replies of reciting pupils and that this defective is the one whose hearing most needs correction. It is also felt that this test is more certain in locating defects of hearing which retard pupils and annoy classes. Space is provided under the same heading for noting discharges from the ears (Otorrhoea) by inserting figures 1, 2 or 3 if such discharge is slight, profuse or offensive.

Under "Breathing" a note is made if breathing is slightly impaired, seriously impaired or if mouth breathing is practised. If, in addition to mouth breathing, the countenance indicates the presence of adenoids, a probable diagnosis of adenoids is made in the marginal record.

The teeth of all pupils are carefully examined and a record is made of any found dirty or decayed or of any with disease of the gums. In examining the teeth all physicians are required to use a wooden tongue depressor (tongue blade), a fresh piece of wood being used with each pupil, the same blade being used to depress the tongue while examining the tonsils.

A record is made of the condition of the tonsils, if slightly enlarged, greatly enlarged or acutely inflamed. A note is made of any enlargement of the cervical glands or of any visible evidence of tuberculosis indicating that the lungs, glands, bones or joints are affected. No detailed examination of the condition of the lungs is undertaken in the school room.

Under "Nervous Diseases" is noted the presence of chorea or epilepsy. The names of the various skin diseases found are recorded and, if communicable, provision is made for excluding children so afflicted from school until cured. A careful examination of the hair and scalp of all pupils is required in order to determine if lice or nits are present and those with infested heads are excluded until treatment is given and the children are certified as no longer infectious, and finally notes are made concerning any deformities found, and of the general nutrition of the pupil.

It requires a great deal of tact on the part of an examiner to succeed in many of the rural school districts, especially where the work is being done for the first time and where the pupils, and sometimes the teachers themselves, are a little nervous and excited about the examination and where no one is fully acquainted with the work. It is altogether probable that sometimes errors occur, but for the most part the reports compare very favorably with examinations in cities where a system has been organized for a period of years.

As rapidly as reports reach the Department, letters are sent through the teacher to the parent, calling attention to the defects found and reading for the most part as follows:

"Dear———

You are hereby notified that the examination of——— made by the Department of Health's Medical Inspector of Schools, apparently shows that———has some affection of the———and we would advise you, for the good of the child, to consult your family doctor relative to treatment.

Very truly yours,

Commissioner of Health."

These reports are sent, as required by law, through the teacher to the parent, the teacher being requested to send us a special report at the end of the school year stating whether or not treatment was secured for the defective pupil and to give an impression of the result. In forwarding these reports through teachers we are careful to call attention to all defects which we believe are remediable, including even such minor details as dirty teeth. It is very gratifying to learn through the teachers that many pupils at the time of medical inspection showing gross carelessness in the hygiene of the mouth and entire lack of care of the teeth, were by the end of the session reported as presenting clean mouths and that most of them were using tooth brushes.

Teachers and social workers everywhere find greater difficulty in impressing upon parents the need of a proper toilet of the mouth, especially a proper toilet of the teeth, than they do in properly looking out for the hygienic condition of other parts of the body. It is extremely hard to make parents appreciate that dirty teeth are diseased teeth. It is difficult to get them to realize that what appears to the eye as mere discoloration of the teeth—the dark rings of dirt—actually means the presence of bacteria and the products of germ life. It is difficult to make them understand that the germs growing and multiplying in the mouth gain direct entrance to the alimentary canal disordering digestion, impairing nutrition, perhaps even causing some serious disease. They do not know that much of the nervous disease noted in schools and a vast amount of the irritability and many of the bad dispositions noted in school children are directly due to bad hygiene of the mouth. There is no way of estimating the amount of wear and tear upon a child's nervous system caused by exposure of nerves in teeth that have not yet actually ached. They may appreciate that with sinuses about diseased gums and roots of teeth much actual pus is squeezed into food while chewing it and we do have some chance of making parents recognize the dangers to the digestive apparatus from this source.

During the session of 1911-12 the inspections reached 3,572 schools, 145,499 pupils being examined. As the work extended throughout the state during this session, other school boards saw the advantages of medical inspection and in the 1912-13 session we reached 7,375 schools and a total of 305,372 pupils. During the session of 1913-14 a total of 377,099 pupils were inspected, a gain of twenty-three per cent. over the previous year, and an increase of a hundred and sixty per cent. over the inspection of 1911. It is of particular interest at this time to observe the statistics of this last inspection and to call attention to certain defects found.

SCHOOL MEDICAL INSPECTION—FOURTH CLASS DISTRICTS.

School Year 1913-1914.

Number of school buildings inspected.	8,969	
Number of schools inspected,	14,475	
Number pupils inspected,	377.099	
Number pupils defective,	274,248	72.7%
Number pupils not defective,	102,851	
Number of pupils having single defects,	138,459	
Number of pupils having multiple defects,	135,789	
Total number of defects,	682,472	
Letters to parents concerning defects,	247,396	

TABULATION OF DEFECTS.

EYES.			
Pupils having defective vision,		91,478	24.25%
Right eye,	14,032		
Left eye,	14,664		
Both eyes,	62,782		
Pupils having other eye affections,		3,749	
Corneal scars affecting vision,	467		
Blepharitis,	1,326		
Conjunctivitis simplex,	1,130		
Conjunctivitis follicularis,	29		
Iritis,	12		
Trachoma,	36		
Strabismus,	749		
HEARING.			
Pupils having defective hearing,		12,319	3.26%
Right ear,	2,597		
Left ear,	2,843		
Both ears,	6,879		
Otorrhoea affecting hearing,		711	
BREATHING.			
Pupils having defective breathing,		21.780	5.7%
Slight impairment,	14,943		
Serious impairment,	3,732		
Mouth breathing,	3,105		
Adenoids (suspected),		4,769	
Goitre,		463	
TEETH.			
Pupils having defective teeth,		194,963	51.7%
Dirty teeth.	36,412		9.65%
Decayed teeth,	158,551		42.04%
Gums diseased,	1,464		
TONSILS.			
Pupils having enlarged tonsils,		105,443	27.96%
Slightly enlarged,	67,929		
Greatly enlarged,	36,183		
Acutely inflamed tonsils,	1,331		
ENLARGED CERVICAL GLANDS,		22,393	

TUBERCULOSIS.		
Pupils reported as having tuberculosis,		154
Tuberculosis of lungs,	102	
Tuberculosis of glands,	25	
Tuberculosis of bones,	12	
Tuberculosis of joints,	15	
NERVOUS DISEASES OF GRAVE IMPORT,		390
Chorea,	347	
Epilepsy,	43	
SKIN DISEASES.		
Pupils having skin affections,		4,618
Scabies,	59	
Impetigo contagiosa,	210	
Favus,	3	
Ring worm,	61	
Nits in hair,	3,493	
Head lice,	144	
Body lice,	2	
Lupus,	1	
Eczema,	289	
Acne,	197	
Other miscellaneous skin affections,	159	
DEFORMITIES.		
Pupils reported having deformities,		1,062
Hunch back,	26	
Club foot,	53	
Curved spine,	100	
Ankylosed joint,	25	
Hare lip,	20	
Cleft palate,	131	
Miscellaneous deformities,	707	
MALNUTRITION.		
Pupils with sub-normal nutrition,		13,702
Slight,	11,476	
Marked,	2,226	
QUARANTINABLE DISEASES.		
Pupils in school that should have been in quarantine,		27
Chicken pox,	11	
Whooping cough,	12	
Measles,	1	
Diphtheria,	1	
Scarlet fever,	2	

It will be noted in the table that seventy-three per cent. of all children are classed as defective. The number seems high, but in tabulating defects, defective teeth are counted. It will surprise many persons, however, to see that one-fourth of all the pupils examined showed some defect of vision; that is, they were unable to read the lines of Snellen's test letters as a normal child should read them. It is gratifying to note that teachers by the end of the school year of 1913-14 reported that the eyes of more than four thousand of these pupils had been benefited by treatment.

Three and three-tenths per cent. of all pupils examined showed some defect of hearing, and at the end of the session 472 of these children were reported as improved.

A very large number of pupils show impairment of nasal breathing, that is, they fail to breathe normally through the nostrils, this failure often being due to growths within the nose or naso-pharynx, to hypertrophied turbinated bones, to adenoids, etc. Many of these defects are remediable only by operative procedure. The teachers reported that many of these defects were corrected during the session.

Of the enormous number having decayed teeth or unclean teeth, forty-two per cent. and ten per cent. respectively, the teachers' records at the end of the session show a total of nearly 22,768 as having had the condition of their mouths and teeth greatly improved. Even in the case of certain affections for which we hardly hoped to secure treatment or improvement, the teachers report treatment and improvement.

Among the most hopeful features of the school inspection are the active interest taken by the teachers and the faithful record made by them of evidence of improvement after treatment was secured. A total of 247,396 letters were sent to parents through the teachers; of this total number 1,269 went astray in the mails and were returned to the Department, most of them because the parents had moved. Eight thousand, six hundred and twelve teachers, however, reported at the end of the term concerning pupils under their care and from these reports we learned that 28,224 of the children were actively treated within a short time after their parents received letters calling attention to the defects found.

TEACHERS' FOLLOW-UP REPORTS, 1913-14.

Schools inspected,		14,475
Pupils whose physical defects were reported to parents, (inclusive of 1,269 stray letters),		247,396
Teachers returning records at end of term,		8,612
Pupils covered by returned records,		147,840
Pupils reported treated,	28,224	
Pupils reported not treated,	84,195	
Records returned with no note by teacher,	35,421	
		147,840
Pupils reported improved by treatment,		26,080
Defects reported improved by treatment,		28,533

TEACHERS REPORTED IMPROVEMENT IN THE FOLLOWING DEFECTS:

Eyes,	4,216	Tuberculosis of bones,	0
Hearing,	472	Tuberculosis of joints,	1
Breathing,	447	Nervous diseases,	38
Teeth,	20,768	Skin diseases,	127
Tonsils,	1,336	Deformities,	1
Cervical glands,	13	Nutrition,	136
Tuberculosis of lungs,	6	Miscellaneous defects,	971
Tuberculosis of glands,	1		

Died, ... 48

In compliance with the provisions of the Code requiring a sanitary inspection, a blank form was designed for this sanitary survey, somewhat more elaborate than the one that had been in use for several years when our health officers performed their similar work semi-annually. The questions in this new form aim to cover practically every condition met in rural schools and in the schools in boroughs of 5,000 or less. The answers were given for 8,969 school buildings (18,408 rooms) as "Yes" or "No" and set opposite the various questions reproduced on Page 21.

As rapidly as the sanitary inspection reports reached the Department copies were made and as soon as sanitary inspection of a school district was finished a complete copy of the inspection report for each school was forwarded to the Secretary of the Board, together with a letter calling the attention of the Board to all violations of the legal sanitary requirements or of the principles of sanitation in general. On the back of the letter the sections of the School Code that were most frequently violated were quoted.

Very many school premises were beneath the legal sanitary requirements and many school plants were far below sanitary standards in details not actually covered by school laws.

In school districts where teachers seem to have had at least an elementary training in hygiene, this training is reflected in the condition not only of the school building itself but of the outbuildings and grounds. In very many school districts, however, the teachers show entire lack of training in the rudiments of sanitation. In other districts, where the school authorities and teachers have placed the school grounds and school buildings in at least fairly decent sanitary condition and where the teachers have insisted upon keeping such grounds and buildings sanitary, the effect is reflected in the condition of the dwelling houses, lawns, and premises of the citizens of the community. Money expended in placing school buildings in a proper sanitary condition not only pays abundantly from the standpoint of public health, but is entirely justified from an esthetic and cultural standpoint. Money invested in good school room furniture, in paint and paper, and money invested in shrubbery and trees and neat and durable fences soon reflects its influence throughout the entire neighborhood.

STATISTICS OF THE SANITARY INSPECTION OF SCHOOL BUILDINGS AND GROUNDS IN FOURTH CLASS DISTRICTS, SCHOOL YEAR 1913-14.

Total fourth class school districts in States,		2,365
Districts inspected by Medical Inspectors,	1,799	
Districts inspected by Health Officers,	367	
*Total districts inspected,		2,166
School buildings inspected by Medical Inspectors,	8,969	
School buildings inspected by Health Officers,	3,156	
Total number of school buildings inspected,		12,125
Multiple room buildings,	2,295	
Single room buildings,	9,830	
Buildings sanitary in all particulars,	527	
Buildings insanitary in one or more points,	11,598	
Total number of school and class rooms inspected.		18,408
By Medical Inspectors,	14,578	
By Health Officers,	3,830	
Less than 15 square feet of floor surface per pupil,		1,197
Less than 200 cubic feet of air space per pupil,		2,439
Insanitary sweeping practised.		11,057
Dry dusting practised,		8,027
Light admitted in front of seated pupils,		1,287
Light area less than 20 per cent. of floor space,		7,523

BUILDINGS.

Adjustable seats or floor stools not used,	4,584
Ordinary stoves used, unjacketed,	4,584
No fresh air admitted at the stove,	7,672
Modern one-room heating system in use,	2,973
No efforts made to keep warm air moist,	6,088
Fresh air ducts subject to contamination,	17
Mechanical (fan) system of ventilation used.	284

WINDOWS THE ONLY MEANS OF VENTILATION.

Not open between sessions,	943
Ventilation boards or shields not used,	8,310

BUILDINGS OF MORE THAN ONE STORY.

Exit doors not opening outward,	276
No iron fire escape provided,	911

WATER SUPPLY:

Unsafe,	1,106
Menaced by surface drainage,	1,032
Menaced by underground seepage,	238
Insanitary water container in use.	4,513
Container not cleaned and refilled properly,	7,075
Common drinking cup in use,	5,877
Public or municipal water supply used.	997
Sanitary drinking fountain in use,	806

PLAYGOUNDS.

Insanitary,	1,497

---

*Boroughs and First Class Townships voting against medical inspection did not have sanitary inspection of buildings by State officers, these districts having no State health officers.
Representatives of local Boards of Health in most instances did make sanitary surveys but their findings are not included in this tabulation.

PRIVIES AND FLUSH WATER CLOSETS.

Separate privies not provided for each sex,	97
Approaches to privies not legally screened,	6,056
Privies unclean,	2,733
Insanitary vaults,	8,190
Vaults full,	6,658
Lime or other disinfectant not used,	6,821
Modern flush closets in use,	419
Closets unclean, (buildings having flush closets),	26
Closets discharge into stream, (flush closets),	47
Closets improperly trapped and vented, (flush closets),	9

It is encouraging that the Directors cooperated so actively with the Department and were so ready to make such changes and modifications of the school plant as were necessary to meet modern demands. One of the most pleasant surprises was a letter reporting some of the work of a School Board in Warren County, our Inspector writing immediately after completing his second inspection in the district. His letter is as follows:

"Dear Sir:—

As School Medical Inspector for Pine Grove Township (Warren County) I would like to make a special report in regard to the improvement made by the Pine Grove School Board since the inspection last year. These improvements are:

1. Use of "no dust" sweeping.
2. Abolishment of dry dusting.
3. The placing of additional windows in each school house to comply with the 20% law.
4. Window boards.
5. Jackets around stoves.
6. Pan water on each stove.
7. Placing foot stools in each room as necessary.
8. Two new ventilation stoves.
9. Paper towels in each room.
10. Changing doors to open outwards.
11. Installation of stand water crocks with spigot at bottom-covered.
12. Individual drinking cups.
13. Screening and repairing closets.
14. Lining closets.
15. Cleaning closets and grounds."

In another district where medical inspection had been practised under direction of the school board for some years and where the school authorities stood still in sanitary matters the board was greatly stimulated by reviewing the sanitary survey blank, and a letter from the Inspector is worth reproducing because it shows well how these inspection reports are helpful in bringing about desired results.

"Sir:—

I am forwarding reports of the medical inspection of the (————————) schools under separate cover. The delay in sending in these reports was occasioned by the request of the Board of Education desiring time to study them and meet the advanced requirements of modern hygiene.

Paper towels have this day been installed, dry dusting has been abolished, and contracts let for the sanitary drinking fountains.

These essentials it was impossible to get until confronted by this sanitary survey of the schools.

I am also sending the return reports of the several teachers with my own notations, as it was impossible for the individual teacher in the remaining time in the session last year to note any change. These notes are made by comparison with their examination this year, and upon questions put to the child at the time of examination."

Even one of our leading State Normal Schools was found to be lacking in certain sanitary particulars and when the examiner made his first visit to inspect pupils, the authorities realizing that they were deficient in sanitary matters, made hurry up contracts with a local plumber and before the inspector had completed his medical examination the directors had installed a full system of bubbling fountains with the hope that they might secure a one hundred per cent. rating for their model school.

Perhaps the most gratifying report of all is that from the County Superintendent of Schools of Berks County, reading as follows:

"To the State Department of Health:

I am anxious to secure the names and addresses of the physicians who have been appointed inspectors of the schools of *Berks County* together with the school districts to which they have been assigned.

Medical inspection in the schools of the rural districts is a god-send and is growing in popular favor in my county. The appointees have always given excellent satisfaction.

Very respectfully,

E. M. RAPP."

The accumulation of results like these encourages the Department, and stimulates the public school authorities of the Commonwealth in their efforts to fix high sanitary standards and to make review inspections from time to time in order to see that the requirements of the law are being observed.

It is just as essential for the country boy and the country girl to be given healthful surroundings in school as for the city boy and girl. It is just as essential that they be taught obedience to the laws of health as that they be taught to read and write and to have a knowledge of arithmetic.

It will be noted by referring to the table that 8,969 school buildings were inspected by medical men. The conditions found by these officers in their various districts encouraged us to believe that in some fourth class districts, where school boards voted against inspection, they did so because of the poor sanitary condition of their buildings. For this reason during the session of 1912-13 and again in 1913-14 health officers of the Department were directed to make a sanitary survey in districts voting against medical inspection that for other governmental purposes are classed as townships of the second class, and the Department's County Medical Inspector made similar surveys in the fourth class districts classed as boroughs. The inspections made by health officers reached a total of 5,102 schools, having 6,331 school rooms. The conditions found by these health officers, if anything, were worse than those found by the medical men in the schools having medical inspection. Reports concerning these inspections were forwarded to directors as was done when the sanitary surveys were made by medical officers.

The form now in use for the medical inspection and the questions for the sanitary surveys are here reproduced, together with the circular of instruction issued to the medical inspectors.

Form 52.

RULES TO BE OBSERVED IN PERFORMING THE DUTIES OF MEDICAL INSPECTOR OF SCHOOLS.

Tact is a most essential requirement in the successful examination of school children. It is more important in these examinations conducted in the school room than it is in private practice. The first questions asked should be those that cause the pupil least mental disturbance. Examination of a frightened child might give results that would be misleading.

When you secure the child's confidence, proceed gradually to the tests requiring its co-operation, namely: measurement of vision (Snellen's Test), testing the hearing, examination of the teeth, tonsils, glands, etc. Teachers can render invaluable service in making these examinations. Their assistance is essential with young pupils in obtaining the name of pupil, parent or guardian and in determining the age of the child.

RECORD FORMS.

Form 51 is to be used to record the results of the individual physical examinations of each child in the various school rooms. Form 51A is used to record the sanitary survey. Be sure to enter in ink all records in clear legible writing.

Identification Record. In using Form 51, record first, the date of inspection, the name of the school, the number of the school or grade, the name of the township or borough in which it is located, (if a borough, leave township space blank), the county, the full name and address of the teacher, (always indicate Mr. or Miss or Mrs.), the full name of the Secretary of the School Board and his address.

You will please exercise especial care *to give the correct Post-office address in both cases.* Also record the total enrollment of the school, and the date of the close of school term. After recording these data, enter in the proper space the name of each pupil to be examined, and the name of the child's parent or guardian, (wherever the parent or guardian is a physician or dentist add M. D. or D. D. S.), indicate the age by figures, and the sex, color and nativity, by vertical lines after which proceed with the physical records, and finally add the number of pupils examined, the number found defective and the number found normal.

MEDICAL EXAMINATION.

Vision Tests. Test each eye separately for vision, using Snellen's Chart, at 20 feet, recording for each eye, in the spaces under R and L the number of feet printed on the chart above the letters or characters on the line where all letters or characters are correctly named.

Please note that in using Snellen's chart, it is to be hung in a strong light, against a dark background, preferably in North light, *at a distance of 20 feet from the pupil whose eyesight is being tested* and that the chart should be hung approximately level with the pupil's head. (Strong light striking the back of the chart gives false lighting and untrue values). Each eye must be examined separately; the eye not being tested should be covered with a card held firmly against the nose without having it press on the covered eye; in this way both eyes remain open while the test is being made. Pupils wearing lenses are to be tested without removing the lenses, and a note is to be made under "Remarks" stating that glasses are worn. Begin the test by having the pupil name the large letter at the top of the chart having 200 feet marked in small figures above it and then read down the lines of letters marked with 100 ft., 70 ft., 50 ft., 40 ft., 30 ft., 20 ft. and so on, recording the number of feet above the last letter of the line where all were correctly named, whatever the record may be, 70, 50, 20, etc. *Do not advance the child toward the chart* in making this test unless the pupil is unable to recognize the character at the top of the chart having 200 feet above it and record only the number of feet above the last line of letters read correctly. If for a very nearsighted pupil it is necessary to place the child nearer the chart, note carefully this fact and the resulting observations; and add the exact distance of the chart from the child in the new position.

Pupils remaining in the room while other pupils are being tested will quickly memorize the lines of letters. Waiting pupils must remain out of the room or be placed in a position where they cannot see the printed side of the chart, or hear other pupils reading. Memorizing the letters vitiates the test. It is always best to have pupils read the line of letters backward, or to skip around the letters in making the test, or to use a card with a hole in it that will cover all letters except one.

Inspectors will frequently find a gross visual error in one eye. In such a case it is better to postpone exact measurement of this error and proceed with measurement of the vision in the opposite eye before tiring out the pupil in determining the exact measurement in the eye most seriously affected.

The record for each eye, even though normal, must be recorded in feet; fractions or metres are not acceptable.

A chart for the illiterate accompanies the supplies. It will be found invaluable in testing the vision of children not familiar with the letters, and especially in young children taught by the word method. By referring to the character E as having legs and *having the pupil* indicate which way the legs point; whether up, down, right or left, results may be obtained that are comparable to the test with Snellen's lines of letters in older pupils. A close vision chart will also be found useful where you want to test accommodation, but we do not require its use.

Some visual errors will not be brought out by Snellen's test. A record of such observation should be made under "Remarks" on the margin.

Under Vision Test in spaces marked (CD.) you will note corneal defects as follows: Figure 1, slight impairment; figure 2, serious impairment; figure 3, blindness, meaning a corneal scar that completely shuts off light.

After testing vision, have the child with its own fingers turn out the lids and expose the conjunctiva and globe; record corneal defects, note the presence of blepharitis, conjunctivitis simplex, conjunctivitis follicularis, iritis or trachoma, entering under "Remarks" the name of any of these diseases found.

Hearing Tests. Test each ear separately for hearing by whispering at twenty feet, training yourself to whisper loud enough for the normal child to distinctly understand you. If the child can not hear you and repeat what you say from 20 feet, you will advance toward him until such distance is reached that he can distinctly hear, recording in the proper spaces under R and L the number of feet where this whisper is distinctly heard, 20, 18, 16, etc. While testing hearing the pupil should close his eyes and stand with the side to be tested toward the examiner, placing his hand over his other ear. We would suggest that numbers be used in whispering and that no special emphasis be placed on any one number. Ask the child to repeat what is whispered. It is necessary to be careful that there is no condition of the wall back of the child which might act as a sounding board and that pupils may not read from your lips.

An *exact record in feet is required for each ear,* even though hearing is normal.

After recording the test, note the presence of otorrhea (OT) for each ear, as follows: Figure 1, slight discharge; figure 2, profuse discharge; figure 3, offensive discharge.

Breathing. After noting the method of breathing, record figure 1 if there is slight impairment of nasal breathing; figure 2 if impairment is serious; figure 3 if the child breathes entirely through the mouth. *Adenoids should be noted under "Remarks"* on the right hand margin.

Teeth. In examining the teeth, be careful to avoid placing your finger inside the child's mouth, expose the teeth by using the wooden tongue blade provided by the Department. Insert figure 1 in the proper space if the teeth are dirty, figure 2 if they are decayed, and figure 3 if the gums are diseased. If cavities have been filled no record of the decay need be made.

Tonsils. Using the same tongue blade you should next examine the tonsils, inserting figure 1 in the proper space if they are slightly enlarged, figure 2 if they are greatly enlarged, and figure 3 if acutely inflamed.

Cervical Glands. If the cervical glands are enlarged, insert a vertical line in the proper space.

Tuberculosis. If you suspect a tuberculous diathesis to exist, record figure (1) in the appropriate column; if you find an active tuberculous form requiring treatment, figure (2), noting under remarks the particular bones, joints or glandular areas involved. In addition send a special report to the Department, for active cases, enclosing it in the envelope with the other records of the school. You will also advise exclusion of pupils having active tuberculosis of the lungs in compliance with the school laws. If the patient is anemic and has a hacking cough, with evidence of fever, take the temperature with a clinical thermometer and count the pulse, and if you can secure sputum, send a specimen to the State Department of Health Laboratory, No. 2000 Arch St., Philadelphia, in a container which will be furnished on request for that purpose.

Nervous Diseases. Record chorea and epilepsy, entering figure 1 for chorea, figure 2 for epilepsy.

Skin Diseases. Make a vertical line in the proper space for any one of the following skin diseases; scabies, body lice, impetigo contagiosa, favus, ring worm or lupus. Record the name of each such disease under "Remarks" and advise the teacher to exclude from school children having such disease, and to readmit them only when they present a physician's certificate attesting to their recovery and non-infectiousness. Forward a morbidity report, form 34, to the health authorities for scabies, lupus or impetigo contagiosa.

Quarantinable Diseases. If any of the following communicable diseases are found, note the name of the disease under "Remarks" and order the exclusion of the child from school at once, issuing a morbidity report, form 34, to the proper Health Officer: Smallpox, diphtheria, scarlet fever, measles, mumps, whooping-cough, chicken-pox, German measles, and trachoma.

Scalp. When nits are found upon the hair of the scalp, insert figure 1 in the proper column. If, in addition, lice are found, insert figure 2. Children with heads so infested are to be excluded from school until medically certified as clean and non-infectious.

Deformities. Insert a vertical line for deformities and enter the name of the particular deformity under "Remarks."

Malnutrition. In judging defective nutrition, insert in the proper space figure 1, if the malnutrition is slight, figure 2, if marked. Do not record normal nutrition.

SANITARY INSPECTION.

Sanitary Survey. On Form 51A, space is provided for making a complete sanitary survey of the school buildings and school grounds. Add name of School Building, Township or Borough, County, full name of teacher, Secretary, and Postoffice of each, exercising special care to give the correct P. O. address. Question 1 under School Building, requires the total number of school or class rooms in the building whether occupied or unoccupied. Do not count library or janitor's rooms, etc. Question 2 requires an answer in square feet for each room occupied for study or class room purposes. If the building has any unoccupied school rooms, write "unoccupied" under the corresponding room number; no other record is required for such rooms. Question 3, give cubic feet for each room. For Question 4 record the number of occupants of each room, meaning the number of pupils enrolled plus the teacher. Questions 5 and 6 require answers in square feet and cubic feet per pupil. These calculations should be carefully made so that the figures given will be accurate. (Recessed windows or minor projections into rooms not to be considered). All other questions are to be answered "yes" or "no." If, in addition to such answer some comment is required in order to give a clear idea as to sanitary conditions, a note should be attached to the sanitary survey form, setting forth such additional data. In answering questions under water supply a careful examination of a nearby premises will often be required. In every instance a personal inspection must be made of privies or water closets.

One Form 51A will answer for a twelve room school building. *Do not use a separate sheet for each room.*

Forwarding Records. The Medical Inspection, Form 51, and Sanitary Inspection Form 51A for the same school are to be forwarded to the State Department of Health, Harrisburg, Pa., at the close of each day's work. A supply of heavy mailing envelopes large enough to hold the forms without folding them will be sent you for mailing purposes.

Go over each form carefully before mailing, sign your name, see to it that the date of inspection is given and that all answers comply with the circular of instructions:

Vouchers. Immediately upon finishing the inspection of schools assigned to you, make out a voucher in duplicate for the entire work on Form 73. Follow closely the method used in "Model Voucher" sent to you with other supplies. The vouchers must be signed by you before forwarding them to the Department.

Caution. Medical Inspectors under no circumstances are to advise with parents or guardians of children examined relative to treatment. The Department will forward to the teachers, form letters intended for the family, so that the teacher may comply with the law and forward to the parents the report of the medical examination of children in whom defects requiring treatment are found. Letters will be sent to the Secretary of the school board calling attention to insanitary conditions of grounds and building requiring correction.

When a Medical Inspector has been in attendance upon a case of acute infectious disease or has examined a case of infectious disease, including tuberculosis, he will be required to take a disinfecting bath and put on a clean suit of clothes before entering the school room for the purpose of taking up his work as Medical Inspector.

SAMUEL G. DIXON,
Commissioner of Health.

FORM 51.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, Commissioner.
MEDICAL INSPECTION OF SCHOOLS.

..................................191....

School .... Grade .... Borough .... Township .... County, ...

Teacher {Mr. / Miss} ....P. O.. Enrollment .... No. Exmained ....

Sec. School Board ....P. O.. No. Defective .... No. Normal ....

NAME OF																														
PUPIL	PARENT OR GUARDIAN	Age	Sex		Color		Nativity		Vision tests				Hearing tests				Breathing	Teeth	Tonsils	Cerv. Glands	Tuberculosis				Nervous Dis.	Skin Disease	Scalp	Deformities	Malnutrition	School Year Ends ....191..
			M	F	B	W	U.S.	F	R	CD	L	CD	R	OT	L	OT					Lungs	Glands	Bones	Joints						REMARKS

Corneal Defects
Slight (1)
Serious (2)
Blindness (3)

Otorrhoea
Slight (1)
Profuse (2)
Offensive (3)

Breathing
Slight Impairment (1)
Serious Impairment (2)
Mouth Breathing (3)

Teeth
Dirty (1)
Decayed (2)
Diseased Gums (3)

Tonsils
Slightly Enlarged (1)
Greatly Enlarged (2)
Acutely Inflamed (3)

Tuberculosis
Suspected (1)
Active (2)

Nervous Disease
Chorea (1)
Epilepsy (2)

Scalp
Nits (1)
Lice (2)

Malnutrition
Slight (1)
Marked (2)

QUESTIONS OF FORM 51A., TO BE ANSWERED IN MAKING THE SANITARY SURVEY.

I. SCHOOL BUILDINGS.

1. Number of school or class rooms in building?
2. Number of square feet of floor surface in each room?
3. Number cubic feet air space to each room?
4. Number occupants in each room?
5. Number square feet floor surface per pupil?
6. Number cubic feet of air space per pupil?
7. Are rooms clean?
8. Is saw dust or other substance moistened with a disinfectant used before sweeping?
9. Has dry dusting been entirely abandoned. (A moist or oiled cloth should be used).
10. Does light enter only from the side or rear and side of seated pupils?
11. Does light area equal 20 per cent. of floor surface?
12. Are pencils or pens collected?
13. Are they redistributed so that each pupil will surely get his own?
14. Are buff colored shades used?
15. Are dustless crayons used?
16. Are adjustable seats used?
17. If seats are not adjustable, are foot stools provided for children whose feet do not touch the floor?
18. Is an ordinary stoved used?
19. Is it jacketed?
20. Is a hot-air furnace used?
21. Is a duct provided for the admission of fresh air at the stove or furnace?
22. Is a modern heater, having outside fresh air intake, used?
23. Is an indirect steam or hot water system used?
24. Is a direct steam or hot water system used?
25. Is moisture added to the heated air?
26. Is degree of moisture determined by using hygrometer?
27. Are cold-air ducts fed from outside the building?
28. Are they protected from air pollution from water closets, etc.?
29. Is a flue provided with opening near the ceiling or floor, for the exit of foul air?
30. Is a forced system of ventilation used? (By means of fan or blower, etc.)
31. Is it in good working order?
32. Are some windows always open from top or bottom, if they are the only means of ventilation?
33. Are ventilation window boards or shields to deflect incoming cold air in use?
34. Are windows kept open during recess?
35. Is a good thermometer provided for each room?
36. Is a well-ventilated, clean, dry cloak room provided?

II. HALLS AND EXITS.

37. Are the halls clean?
38. Are they well lighted?
39. Are they well ventilated?
40. Are stairs wide and flights straight?
41. Are exits free from obstruction?
42. Do the exit doors open outward?
43. Are iron fire escapes provided?
44. Are fire drills conducted regularly?

III. BASEMENT.

45. Is the basement clean?
46. Is the plumbing modern?
47. Is the basement well ventilated?

IV. WATER SUPPLY, ETC.

48. Does the school have its own water supply?
49. Is water secured from *nearby* premises?
50. Is it apparently pure?
51. Is it protected from surface drainage?
52. Is it protected from privy vault, cesspool or manure seepage or drainage?
53. Is water kept in a container within the school building?
54. Is a covered container with spigot used?
55. Is the container scalded weekly?
56. Is a fresh supply secured each session?
57. Is a public or municipal water supply used?
58. Is the water system extended throughout the building?
59. Are sanitary drinking fountains provided?
60. Have common drinking cups been abolished?
61. Does each pupil have his individual drinking cup?
62. Are paper or other forms of individual towels in use exclusively?

V. GROUNDS.

63. Are playgrounds adequate in size for number of pupils?
64. Are the play-grounds well drained?
65. Are grounds free from pollution with fecal matter, or urine?
66. Are grounds and immediate vicinity free from accumulations of manure, garbage or other refuse?

VI. SEWAGE DISPOSAL.

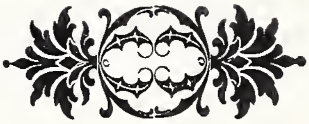
67. Are separate privies provided for each sex?
68. Are they in good repair?
69. Are the approaches tightly screened?
70. Are they clean?
71. Are they tightly boarded at the base to exclude flies or draughts?
72. Are deep vaults provided?
73. Are vaults water tight?
74. Have the vaults been properly cleaned?
75. Is lime or other disinfectant used over vault contents?
76. Are *modern* flush closets used?
77. Are they clean?
78. Do they discharge into a public sewerage system?
79. Do they discharge into cesspools?
80. Do they discharge into or do contents find way into a stream? (If so, give name of stream under remarks).
81. Are fixtures properly trapped?
82. Are soil pipes carried through roof?

Remarks:

NOTE.—Questions 1 to 17 are answered for each room in multiple room buildings.
Questions 1 to 6 are answered in figures.
All other questions "Yes" and "No" when possible.
Under Halls and Exits, questions 40 to 43 are answered with a dash for one-story buildings.
Under Water Supply, questions not applying are answered with a dash.
Under Sewage Disposal, questions either 67 to 75 are answered, or questions 76 to 82 inclusive.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibilty to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.



PENNSYLVANIA Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 60. HARRISBURG, PA. August, 1914.

PROGRESS IN PREVENTIVE MEDICINE IN PENNSYLVANIA SINCE THE CREATION OF A STATE DEPARTMENT OF HEALTH.

The earliest attempts to secure comprehensive local public health acts for any section of Pennsylvania were the local laws applied at the Port of Philadelphia, drafted about 1793 and 1794 directly after the great yellow fever epidemic in 1793.

The first efforts to establish a State Board of Health in Pennsylvania resulted in failure—the bills presented to the Legislatures of 1881 and 1883 failing to pass; and a similar bill seemed destined to meet a like fate in 1885 when the frightful epidemic of typhoid fever in the little town of Plymouth occurred. This epidemic brought the Legislature to a full realization of its responsibility and led to the adoption of the act creating the first Board of Health consisting of six persons, the majority of whom were to be physicians of good standing and having an experience of not less than ten years, and a secretary, to be chosen by the board, who was required to be a physician with similar qualifications and experience. Dr. Benjamin Lee, a most estimable gentleman of New England ancestry, acted as Secretary of the Board and its executive officer for a period of twenty years.

This Board was crippled in its general work by lack of funds and was much circumscribed in its powers and duties. It succeeded in educating as to the value of health, and special appropriations in times of epidemics enabled it to demonstrate to the lawmakers that preventable diseases could be successfully combatted.

The next great step forward was in the city of Philadelphia, the advance being made because of the deadly epidemic of smallpox occurring the latter part of 1901 and extending to 1904. This epidemic continued so long and resulted in such great loss of life and was of such great financial cost to the city that the public in Philadelphia became aroused and presented a bill to the Legislature in 1903 asking the passage of an act to reorganize the Health Department of that city. Through this legislation the Department of Public Health and Charities was created. The old Board of Health, reduced to three members, was continued as subsidiary for the purpose of formulating rules and regulations, etc.

An eminent Professor, Dr. Edward Martin, was selected for director of the new department, and on the Board was Dr. Charles B. Penrose, a professor in the University Medical School.

During the years 1903 and 1904, Doctor Penrose became actively interested in public health problems and saw the need and possibilities of a properly organized State Department of Health. He made a careful study of public health legislation in the New England states, particularly Massachusetts, and in New York City, and drafted the bill in 1905 under which the present Department was organized. While this bill was before the Legislature, he gave up weeks of his time to personal work in educating the members of the Legislature to the wisdom of passing such a comprehensive law. The time was opportune, for the epidemic of smallpox had become state wide. The State Board of Health had been fighting under a special law passed during the previous session of the Legislature and had done much good work with the aid of a special appropriation.

It was this smallpox epidemic, then, beginning in 1901, that two years later started the progressive health movement in Philadelphia, and the same epidemic extending throughout the State assisted Doctor Penrose very materially in having his bill enacted into law during the 1905 session of the Legislature.

The year 1905 is thus a memorable one in the history of Pennsylvania from the standpoint of public health, because in that year the broad acts, upon which the Department is organized and from which it derives its authority, were passed by the Legislature during the month of April: First, an act creating a Department of Health and defining its powers and duties; second, an act to provide for the immediate registration of all births and deaths throughout the Commonwealth; and third, an act to preserve the purity of the waters of the State for the protection of public health.

These three laws were passed as separate acts, the companion bills being drawn in anticipation that the act creating the Department of Health would become law; hence, the provision that in preserving the purity of the waters and in the collection of vital statistics, all should be done under the general supervision of a Commissioner of Health who is also an executive member of the new department.

In one session of the Legislature, Pennsylvania, then, was given a Department of Health with police powers exceeding those in any other State of the Union, and the responsibilities were placed upon the executive of the new department.

The act creating the Department of Health in Pennsylvania is typical of modern legislation in giving its executive an advisory board to call upon for consultation and the approval of rules and regulations best suited to carry out the new laws.

This act gives very broad power in that it grants authority to the Commissioner of Health "to determine the most practical means for the suppression and prevention of disease." He may decide what assistants are necessary to carry out work imposed upon the Commissioner and appoint those assistants. It enables the Commissioner to purchase all the materials and supplies necessary for carrying on his work; to issue subpoenas requiring attendance and testimony; to issue warrants to sheriffs, constables, and policemen requiring the apprehension of those who have violated quarantine regulations; to enter personally or by his agents, without fee or hindrance, examine and survey all grounds, school, apartments, buildings, and premises suspected of containing nuisances, or where questions arise affecting the security of life and health, and to confer the power of constable on any of his agents for this purpose. He may order the abatement of nuisances, remove and enforce quarantine regulations; has general supervision of State registration of births, marriages, deaths, and communicable diseases; of practitioners of medicine and surgery, and of midwives, nurses, and undertakers, in all matters pertaining to such registration.

The act providing for the prevention of the pollution of public waters delegates all authority for protecting the streams and other sources of supply of potable waters to the Commissioner of Health, with the concurrence of the Governor and the Attorney General, and, together with the act creating a Bureau of Vital Statistics, providing for the registration of births and deaths, completes the ground work upon which the present organization is based.

Previous legislation in this Commonwealth had provided for the organization of local Boards of Health in cities, boroughs and townships having a population of more than two hundred and fifty to the square mile.

The present central public health organization in Pennsylvania has direct executive control over all public health problems of every sort in the second-class townships* of the Commonwealth, or in other words, of a territory comprising more than four-fifths of the area of the Commonwealth, practically covering 40,000 square miles, and containing more than one-quarter of the entire population, a total approximately of two and a half millions. In addition, it has advisory and supervisory control over all the public health agencies for the remaining area and population of the Commonwealth. The Sanitary Engineering work, the Tuberculosis work, and the collection of Vital Statistics, are not limited in any particular by local governments or by local government boundaries.

---

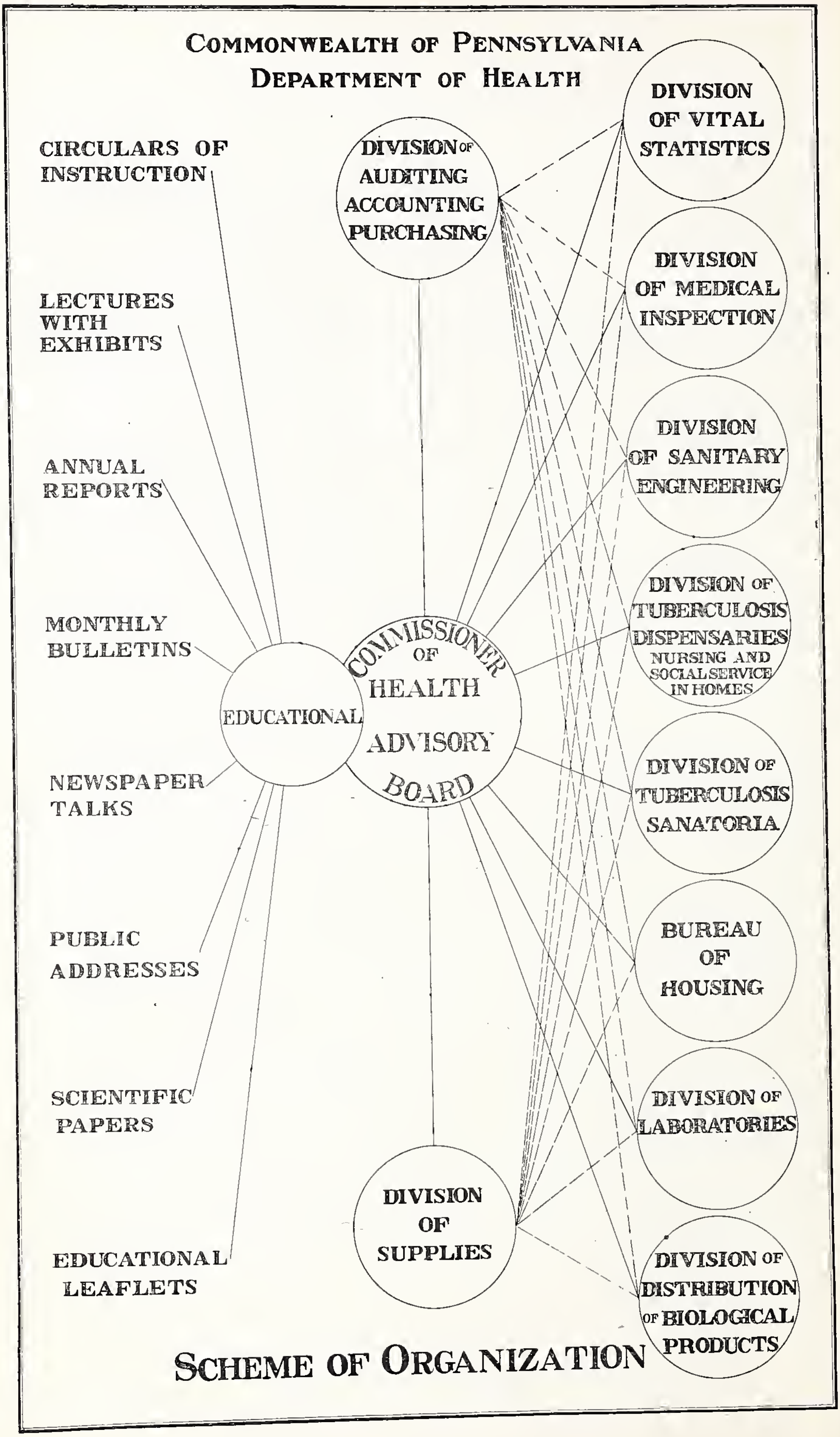
*Townships having a density of population less than two hundred and fifty to the square mile are townships of the second class. There are 1,783 such townships in the Commonwealth. Townships with a density of population exceeding two hundred and fifty to the square mile are termed townships of the first class and in Pennsylvania such townships are required to maintain Boards of Health. There are forty-six such townships in the Commonwealth.

In the handling of communicable disease absolute executive control is limited to the country side, that is, to practically four-fifths of the land area, municipalities having their own boards of health being expected to look out for communicable disease within their boundaries, the Department only assuming executive control when these boards neglect their duties and perform the work in a way that may become a menace to the public at large.

Within such broad police powers conferred upon a single department a great deal would naturally be expected. The wisdom, however, of such liberal laws amply justifies their adoption when the executive authorities aim to keep close to the people and keep them advised constantly as to what the next advanced step will be. With such broad powers granted in the beginning it does not become necessary to await another session of the Legislature to secure additional power to take up new lines of work, and this very liberality in providing for the plan of organization enables the executive and the Advisory Board to develop plans as they go along, adding a Division, a Bureau, or a new line of work as the occasion demands.

Even better than the admirable law passed in 1905, providing for the organization of the Department, was a most liberal appropriation, thus enabling the entire Department and the Chief of each of its Divisions to enter heartily into the work without question that results would be accomplished, and that each individual would be able to see something of the results.

We feel that whatever degree of success we have met with in Pennsylvania may be in good part attributed to the liberal financial support and to our ability by means of this support to grow rapidly and to show results quickly. Such results can only be accomplished when liberal laws are supported by liberal appropriations. Limited laws with small appropriations would have entailed a very much slower development of the work.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

CIRCULARS OF INSTRUCTION
LECTURES WITH EXHIBITS
ANNUAL REPORTS
MONTHLY BULLETINS
NEWSPAPER TALKS
PUBLIC ADDRESSES
SCIENTIFIC PAPERS
EDUCATIONAL LEAFLETS
EDUCATIONAL
DIVISION OF AUDITING ACCOUNTING PURCHASING
COMMISSIONER OF HEALTH
ADVISORY BOARD
DIVISION OF SUPPLIES
DIVISION OF VITAL STATISTICS
DIVISION OF MEDICAL INSPECTION
DIVISION OF SANITARY ENGINEERING
DIVISION OF TUBERCULOSIS DISPENSARIES NURSING AND SOCIAL SERVICE IN HOMES
DIVISION OF TUBERCULOSIS SANATORIA
BUREAU OF HOUSING
DIVISION OF LABORATORIES
DIVISION OF DISTRIBUTION OF BIOLOGICAL PRODUCTS

SCHEME OF ORGANIZATION

SCHEME OF ORGANIZATION.

In June, 1905, Governor Pennypacker appointed the first Commissioner of Health for the State of Pennsylvania, and shortly after this the organization of the newly created Department was undertaken. The executive is the Commissioner of Health, and for purposes of executive control important executive divisions have been established and organized, the Bureau of Housing being the last to be added. The correlation of the extremely varied work of the Department is outlined in the accompanying diagram.

The chief of each of these divisions derives his authority from the Commissioner and makes all reports directly to that officer. You will note, as indicated on the plan, that the Division of Accounting, Auditing, and Purchasing does all of the auditing and all of the accounting. It does all of the purchasing for the tuberculosis work and also purchases certain supplies for some of the other departments. Supplies for the general work are procured by the Board of Commissioners of Public Grounds and Buildings. In this way the executive officers of the divisions are left free to do the essential executive public health work. The Division of Supplies attends to the storing and shipments of the various kinds of supplies that are required for executive work.

It will be seen, as the plan is intended to show, that reports of investigations of executive and field work after they pass into the hands of the Commissioner are rewritten and re-edited and from each such report, whatever it has in it of public interest or of educational value is reflected back to the public, with its useful educational lesson couched in language so simple and plain that the layman may readily grasp its meaning.

The observant reader will note that circulars of instruction, our traveling exhibits with lecturers attending, annual reports of the work of the Department, the monthly bulletins issued by the Commissioner and the weekly newspaper talks given out by him, the various public addresses, scientific papers, and educational leaflets, all carry back to the public a knowledge of preventive medicine that prepares them for a large expenditure of funds and for liberal co-operation.

Taking each of the executive divisions in turn: The Division of Vital Statistics is organized with a Registrar in charge, an office staff of twenty-five or thirty persons, and a series of 1,170 local registrars, each with a deputy. These men receive all birth and death certificates in their respective communities and transmit them to the Department. In this Bureau of Vital Statistics practically all the statistical work of the Department is done; the registration of births and deaths, morbidity statistics, and marriage licenses, and the tabulation of school statistics, statistics of the various dispensaries and sanatoria of the Department. All important statistical work is done here. The same bureau also supervises the copying and transmitting of copies of birth and death certificates to the office of the Federal Census in Washington. The original copies of all of these various statistics are catalogued, bound, and filed in fireproof vaults and will be kept indefinitely for legal and social purposes. Here, too, certified copies of vital records may be obtained when required to establish identity or for other uses in legal proceedings.

The Division of Medical Inspection as organized consists of a Chief Medical Inspector, an Associate, an Assistant, a Chief Clerk, 66 County Medical Inspectors, 105 Deputy Medical Inspectors, 649 Health Officers, these persons contributing largely of their time to the problems connected with general sanitation and the handling of communicable diseases, and a corps of 921 School Medical Inspectors, who make both medical and sanitary inspection of schools in the rural districts and municipalities having a population of less than five thousand.

The Division of Sanitary Engineering is organized with a series of sub-divisions and a total staff of about one hundred and six persons. Through the office of the Chief Sanitary Engineer must pass all plans for the building or extending of water works, sewerage systems, and sewage purification works, and the preliminary sanitary surveying where municipalities propose to build water works. All stream sanitation looking toward the prevention of the pollution of the waters of the State is carried on by officers of this division.

The fourth and fifth divisions of the organization are devoted exclusively to tuberculosis work. The Division of Tuberculosis Dispensaries is supervised by a Medical Inspector in charge, his assistant, two supervising nurses and a statistician. The Department has provided dispensaries for the treatment of those who are unable to pay for such services, in every municipality of any size in the Commonwealth. At the present time 119 of these tuberculosis dispensaries are in operation, having connected with them two hundred physicians and one hundred and nineteen nurses trained in sociological work.

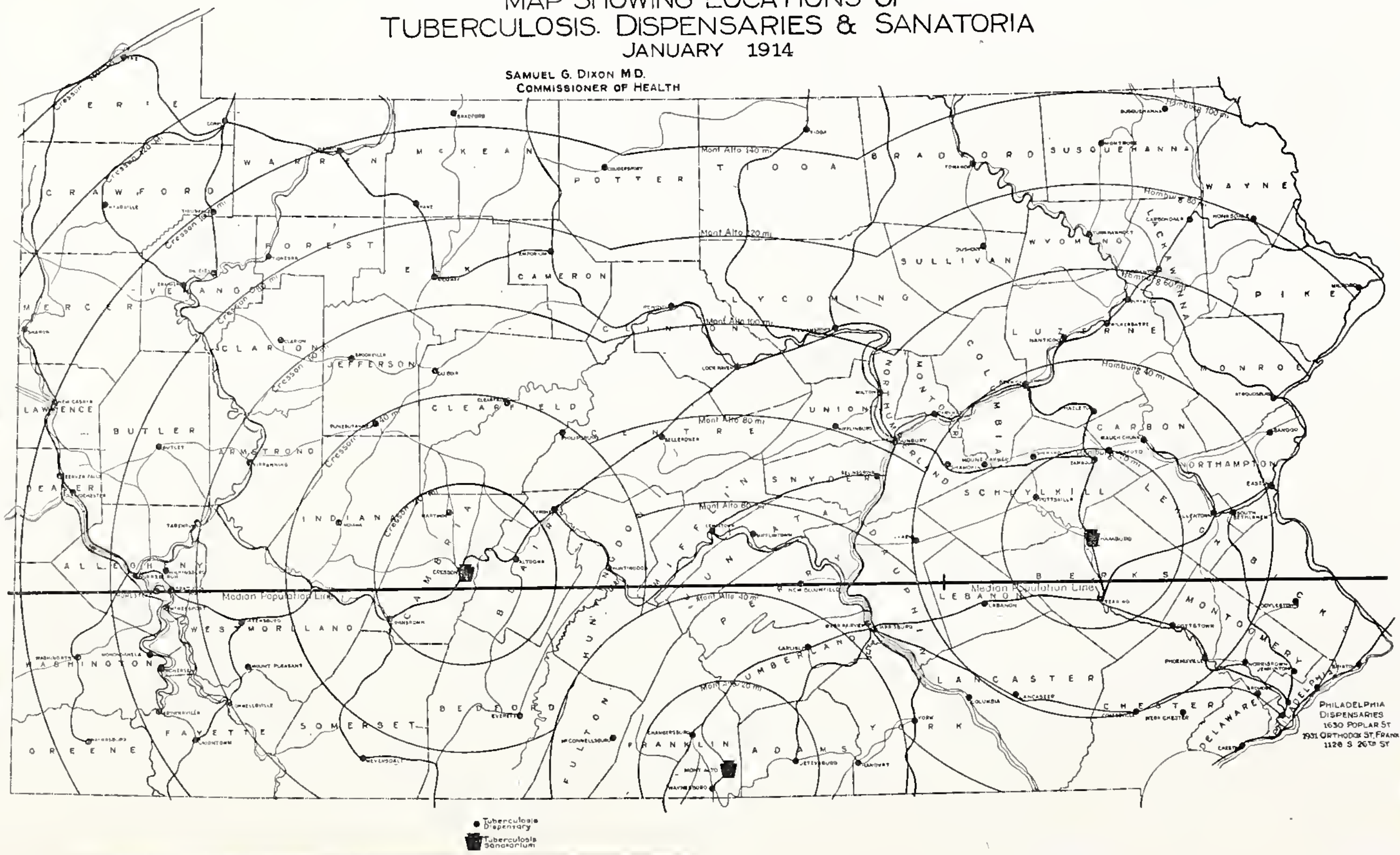
The distribution of dispensaries and the location of sanatoria are clearly plotted on the accompanying map.

Pennsylvania's great centres of population are in the valleys of the three river systems, a large population being grouped about the junction of the Allegheny and Monongahela and along the Ohio below this junction; a large centre of population along the Susquehanna in the vicinity of Harrisburg, with additional large centres up the North Branch in the anthracite coal region about Wilkes-Barre and the neighboring Scranton; and the greater centre of population in the

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
DIVISION OF TUBERCULOSIS DISPENSARIES
MAP SHOWING LOCATIONS OF TUBERCULOSIS DISPENSARIES & SANATORIA

JANUARY 1914

SAMUEL G. DIXON M.D.
COMMISSIONER OF HEALTH



southeastern section of Pennsylvania along the Delaware and its branches, Philadelphia and the cities in the valleys of the Schuylkill and the Lehigh.

The heavy line drawn across the map shows the median line of the population of the State north and south; the short vertical line in Lebanon county shows where a median line of the population east and west would cross it.

These population factors were considered in determining the locations for the various sanatoria which are indicated by the keystone.

Every large centre of population and each county has a tuberculosis dispensary—several counties have more than one, Allegheny having six and Philadelphia three.

All patients seeking admission to any of the Department's tuberculosis sanatoria must make their application for admission at one of the Department's dispensaries and must there be examined and listed for admission. In addition all members of such patient's family and any poor who are unable to go to the sanatoria receive the advice and aid of the dispensary doctor and nurse so long as they require it. The work of the Dispensary Division and that of the Sanatoria dovetail into each other so closely that each is constantly informed of all details of the other's work.

As soon as a patient is discharged from a sanatorium the Chief Inspector of the Dispensary Division is notified and in turn he notifies the dispensary doctor, who takes up further supervision and watchful nursing care at home. All persons discharged from the sanatorium are followed up by the dispensary nurse or physician twice a year or oftener for at least four years. Complete written reports are prepared as to their condition of health and financial capacity, these reports being checked against the original hospital records, and a similar method is worked out for cases discharged from the dispensaries. Eventually these records are bound to prove of the very greatest value in determining lines of endeavor in furthering the campaign against tuberculosis.

There are three Sanatoria for the care of the tuberculous, each easy of access and convenient to large centres of population. The Sanatoria are of great size and are thus constructed because of economy in administration. Mont Alto Sanatorium in South Central Pennsylvania is at present the largest tuberculosis sanatorium in the world, having 1,146 beds in operation. Cresson, the second State institution is located just west of the crest of the Alleghenies, along the Pennsylvania Railroad, and has 344 beds; the second wing now under way will increase the capacity to 432 beds. Hamburg, the third sanatorium, is located at the foot of the Blue Ridge Mountains in Berks county, in the southeastern part of the State, and will open in a couple of months with upward of five hundred beds. In Pennsylvania the entire tuberculosis problem is believed to be first, last, and all the time, a public health problem; and the dispensaries and sanatoria are held to be the strong arms of public health machinery that should be operated by Health Departments. With the opening of the Hamburg Sanatorium the total number of free beds for the treatment of tuberculosis in Pennsylvania will be nearly two thousand, and with the completion of the new wing at Cresson more than this number of beds will be available.

Provision was made by the last Legislature for the organization of a Bureau of Housing in the Department of Health and to extend its responsibilities everywhere except to the first-class city of Philadelphia, for which a separate Housing Bureau was created. The act became a law at the end of the session after the budget of the Department was already approved and no special funds were appropriated for organization. The Commissioner will soon appoint the chief of this bureau and hopes to have sufficient money available from the general fund to complete at least the essential parts of organization and to show enough striking results between now and the coming session of the Legislature in January, 1915, that liberal financial support for this new bureau may be forthcoming.

Early in the history of the organization of the Department, a laboratory was planned and placed at the disposal of the physicians of the Commonwealth. Sputum of persons suspected of having tuberculosis, cultures, swabs, and smear preparations from the throat, blood samples, the various excreta from the body, even tissue believed by the attending physician to be diseased, are sent to the laboratory. An enormous amount of work is done in studying the waters of the State. In recent years the Department has taken over the manufacture of all tubercle bacilli products used in the State's dispensaries and sanatoria, and has in addition conducted research work along many scientific lines.

The Division for the Distribution of Biological Products was early established and has grown so that at the present time we have 671 local distributing stations where physicians may secure diphtheria antitoxin free of cost to those unable to pay for it; Philadelphia and Pittsburgh manufacture and distribute for their own municipalities. At least one of these stations convenient for each county is kept stocked at all times with tetanus antitoxin put up in doses suitable for immunization and just prior to the Fourth of July these special "tetanus" stations are well stocked with immunizing doses and the public and all physicians throughout the entire State are advised where it may be secured.

Within the circle in the plan of organization appears the word "educational." Those devoting their time to this particular part of the work of the Department are directly connected with the offices of the Commissioner himself and practically all material given out of educational value is personally supervised by the Commissioner.

Many avenues are open for educational campaigns but none are so valuable in the long run as the public press. Fortunately in Pennsylvania there are more newspapers and publishers than in any other single state in the Union. There are 211 daily papers printed and circulated within the Commonwealth and more than 700 weekly and monthly publications printed in the State. The Department has had the hearty co-operation of these 900 publications.

Traveling Exhibits. The Tuberculosis Exhibit, the School Hygiene Exhibit, Infant Welfare Exhibit, each of these carries useful lessons throughout the Commonwealth and as near to the homes of the public as we are able to get them. These exhibits have already been in every large centre of population in the Commonwealth. Valuable educational assistance has been given by the various charitable organizations, civic clubs, philanthropic societies; circulars of instruction are printed, some in many tongues, and sent broadcast. The clergy at least annually and in many instances more frequently preach public health sermons concerning tuberculosis, the diseases that cause infant mortality, and other preventable diseases.

Beginning with the organization of the Department in 1905, $400,000 was appropriated for the biennial period, with an emergency fund of $50,000. In the following sessions of the General Assembly these appropriations were made, each covering a period of two years:—

1907,	$2,100,600
1909,	3,000,000
1911,	3,624,000
1913,	4,179,280

The tuberculosis work was started in 1907, hence the increase to over two millions, one million being for tuberculosis work, and the heavy increases ever since have been for tuberculosis work, the bulk of them being for sanatoria buildings and for the maintenance of indigent patients suffering from tuberculosis.

The Division of Vital Statistics has received and recorded since the organization of the Department 1,558,315 birth certificates; 914,655 death certificates; 489,560 marriage certificates; 62,805 certificates of stillbirths. These original certificates are all catalogued, bound in volumes, tabulated, and filed away in fireproof vaults of the Capitol, and what is of prime importance is that Pennsylvania has good vital statistics and records of incalculable value to future generations. Eventually this division will earn the greater part of its operating expenses through the fifty cent fee exacted for certified copies in the settling of inheritances and satisfying court records and insurance records, and in issuing labor certificates.

In the Division of Medical Inspection in the single year of 1913, some 33,000 premises were visited by health officers and some sort of quarantine established; and with expiration of quarantine 58,000 rooms were disinfected by means of formaldehyde gas.

In the Medical Sub-Division of School Inspection for 1913 we reached 305,000 school children and 11,000 school rooms. In each of these buildings a complete medical and sanitary inspection was made, and during the school year just closed we shall reach more than 400,000 pupils and more than 14,000 school rooms. Letters are annually sent to parents calling attention to each remediable defect and letters go to the secretaries of school boards calling attention to the insanitary things found by our inspectors. Letters were sent to parents, calling attention to the defects found in 210,000 pupils during a single school year.

The Division of Sanitary Engineering, in addition to making preliminary studies for the Commissioner of all contemplated sewerage systems, sewage disposal works, water filtration systems, and the filing of complete sets of plans for such works, points with some degree of pride to the fact that up to the end of 1913 more than 52,652 separate stream pollutions were permanently abated; with the approval and under the stimulus given by the Department, 184 sewerage systems were built or were in the course of construction; 85 sewage treatment plants were built and six were in the course of construction, fourteen of them being for large municipalities; one hundred water purifying plants were built, twenty-five being for municipalities, seventy-two for water companies, and three institutional plants.

In the Division of Tuberculosis Dispensaries, from the end of 1907 up to the first day of May, 1914, 68,180 tubercular persons were examined and, in addition, 18,589 persons, often other members of the family, were examined and not found to have definite signs of the disease, and during this time the trained nurses doing dispensary and sociological work made 668,286 visits to the tubercular sick in their homes. Nearly 7,292,000 quarts of milk have been furnished the needy free of cost. The sanitary teaching in the homes by the nurses cannot, of course, be accurately estimated.

In the Sanatoria much has been accomplished. At Mont Alto, the largest, from the opening date in 1907 up to May 1st, we treated 11,569 patients, each remaining for an average stay of four months and each being followed up twice a year as already stated. Of this number 48 per cent. were classed as far advanced, 38 per cent. as moderately advanced, and 14 per cent. as incipient cases. The Cresson Sanatorium treated in the first sixteen months of its existence 1,169 patients.

The Division of Laboratories has accomplished a great deal of work of value to the physicians of the State. Some 342 specimens of blood have been studied for malarial parasites; 4,585 Widal tests have been made; 40,311 sputum analyses have been performed in the laboratory, and analyses of other excreta of the body have been made in 1,252 instances; 734 pathological fluids, such as fluids coming from the chest after pleurisy, have been studied; 1,419 morbid growths, most of them sent in from persons presumably afflicted with cancer; 479 specimens of feces have been examined; and 40,822 samples of water have been analyzed in the laboratory, or a total of nearly a hundred thousand specimens in nine years.

In addition to all these analyses, products of the tubercle bacillus are manufactured for dispensary and sanatorium use. Pennsylvania was the first to produce a degree of immunity to tuberculosis. It was published in the Medical News of Philadelphia as early as the year 1889. The water extract of the tubercle bacillus was published in the Medical News in 1890. The laboratory has put out some thirty thousand doses of these products within the last two years; that is, since it took over their preparation.

Through the distribution of other biological products up to the end of 1913, some 46,000 persons have been immunized against diphtheria and 57,000 persons treated. More than 150,000 packages of serum have been distributed to accomplish this result, and in addition 800 packages of tetanus antitoxin have been distributed free to the poor.

In addition to this distribution, vaccine virus has been widely shipped throughout the State each time smallpox developed.

Results in public health work can best be shown by figures. The death rate in Pennsylvania from all causes in 1906 was 16 in each thousand of population. The general death rate has declined year by year until for the year 1912 it was 14 in the thousand, and in 1913 it was 14.5.

DEATHS IN PENNSYLVANIA—1906 TO 1913 INCLUSIVE.

Year.	Population.	Deaths from all causes.	Rate per thousand.	Saving as compared with 1906.
1906	7,141,766	114,435	16.0	
1907	7,279,792	115,969	15.9	508
1908	7,417,816	112,246	15.1	6,439
1909	7,555,841	111,062	14.7	9,831
1910	7,693,866	119,815	15.6	3,287
1911	7,831,904	111,292	14.2	14,018
1912	7.969,942	111,842	14.0	15,677
1913	8,107,980	117,995	14.5	11,733
			Total saved,	61,493

In this convenient tabulation is shown what would have resulted if the death rate of 1906 had continued during the seven following years, and it appears that considerably more than sixty thousand lives may be considered to have been saved by public health work in the Commonwealth.

Those who are statistically inclined frequently attempt to show results in dollars and cents. Political economists nowadays rate the average life, deaths at all ages being taken into consideration, at from $1,700 upward, courts placing the valuation as high on the average as $5,000, but for the sake of our discussion let us put the rate at the minimum of $1,700, the figures used by Prof. Irving Fisher in the Report of the Committee of One Hundred. Calculating the saving in dollars and cents with the even number of 60,000 lives, we shall readily see a saving amounting to $102,000,000. The appropriations to the Department of Health ran a little under eleven and half million dollars during the time under discussion, let us say, an even twelve million for convenient calculation, and let us estimate that an equal amount of twelve million was appropriated to Health Departments in various municipalities and to other agencies doing work closely allied to public health work; we are perhaps considerably too high, but let us grant twelve million dollars for this sort of thing and add an additional six million dollars as that supplied by the philanthropic and charitable agencies contributing largely in the educational campaign, making a total of thirty millions of dollars. Counting this outlay of thirty million dollars as an investment, there has been in the saving of $102,000,000 in human life alone not only a return of the original capital put in but an additional return of seventy-two million dollars; in other words, the investment has made a clear profit of two hundred and forty per cent. over and above the amount laid out. Such an investment would satisfy any capitalist in the world. In this calculation no account whatever has been taken of the enormous financial saving from preventable illness.

The activity of the Department has been in co-operation with many boards of health in urban communities and other agencies which contribute to the sanitary uplift. The State Department of Health has been, however, directly in charge of public health conditions in rural districts with a total population of more than two and a half million and has had direct supervision of a much larger population than that of any other single agency; and through its tuberculosis work and sanitary engineering work and distribution of diphtheria antitoxin has reached every municipality in the Commonwealth and has stimulated many communities into doing more effective work.

In 1905 the death rate from typhoid fever was 54.8 per hundred thousand. By the end of 1913 it dropped to 18.1 in the hundred thousand, a decline in the death rate of sixty-seven per cent. For the interval a careful calculation would show a saving of at least one hundred thousand cases of typhoid illness. It is fair to claim that this decline is largely due to the installation of better water works, to the installation of sewerage works, to the abatement of nuisances that are a menace to health and likely to pollute water supplies, and to the establishment of proper restrictions and safe regulations on premises from which milk and milk products are sold.

The death rate from diphtheria in 1906 was 34.1 per hundred thousand. By the end of 1913 it dropped to 25.8. Here all agree that the distribution of diphtheria antitoxin for curative and immunizing purposes, educational work, and the proper administration of quarantine and the establishment of safe regulations for the sale of food products have been responsible for much of the decrease.

The death rate from all forms of tuberculosis in 1906 was 150.9 per hundred thousand. By the end of 1913 it had dropped to 120.9 per hundred thousand. Here, too, it will be agreed that the active tuberculosis campaign has contributed in a telling way; the work of the Dispensaries and Sanatoria of the Department, the lessons impressed by our nurses, the influence of the various small Sanatoria, all have been contributing largely, whether governmental, endowed, or private.

Even in some of the communicable diseases where physicians are somewhat skeptical as to the result of quarantine, figures seem to show practical results. In whooping cough the death rate in 1906 was 21.7; in 1913, 11.7; the rate was cut almost in half. From 1,550 deaths in 1906 the number dropped to 898 in 1913, notwithstanding the increase in total population. Prior to 1905 practically no control of whooping cough was undertaken, even in our large cities, and yet this disease dropped steadily year by year with better supervision until today the death rate itself is enough to justify the precautions that were taken.

With measles and scarlet fever and the various other contagious diseases similar declines in death rates can be shown, although not so graphically as with some other communicable diseases. For one disease, unfortunately, no such results have been shown. Cancer in 1906 was responsible for the death of 4,208 persons and in 1913, 5,854 deaths are attributed to this disease. The death rate has increased from 58.9 to 72.2 in each hundred thousand.

The recital of what has been accomplished in Pennsylvania since the creation of the State Department of Health is certainly encouraging.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Year's Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility of Tuberculosis. 2. Purity of Milk 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr. 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bath Tub and Laboratory.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 61. HARRISBURG, PA. SEPTEMBER, 1914.

CERTAIN STANDARDS FOR TUBERCULOSIS DISPENSARIES.

One of the most notable phenomena which have served to distinguish the present era of progress in scientific medicine has been the development of the specialties. As the specialists have increased their fields of endeavor, the people have realized the value of expert treatment and have applied for it in ever increasing numbers. To meet the demands of the poor, who require such services and to afford special training for ambitious physicians, dispensaries of various kinds were established.

From the nature of the disease considered and the procedure adopted for its successful subjugation, each dispensary has acquired a characteristic atmosphere. There is a silent, swift, coldly businesslike activity in the surgical dispensary, while prolonged conversation, involving the most intimate affairs of life, is the feature of the psychopathic clinic—where there is even a time for dreams!

Special Dispensaries for dealing with Tuberculosis are of comparatively recent origin. They are indicative of the general awakening of profession and laity to the economic significance of the prevalence of this disease and to the simplicity of its treatment. The successful Tuberculosis Dispensary has an atmosphere of its own, created by the social and medical forces, which are peculiar to its work. In its physical aspect, it should stand forth as a shining example of hygienic environment. The Dispensary furniture and apparatus should be of simple construction and free from "dust-catching" features. The best facilities should be provided for light, heat, ventilation, and drainage.

The moral tone of the Dispensary should be one of cheerfulness and constant encouragement. The importance of thoughtfulness for each patient cannot be over-estimated. It is a great effort for many persons to bring themselves to the point of seeking assistance from a Dispensary, especially when a thorough physical examination is in prospect. Indifference on the part of attendants, including the janitor, toward putting the applicant at ease, or lack of promptness in administering to his wants, may result in his slipping away quietly, with the idea of postponing the evil day. He may never appear again, or he may come back months later in an advanced and hopeless condition.

The program of the system of Tuberculosis Dispensaries conducted by the Pennsylvania Department of Health consists in the examination of patients for admission to the State Sanatoria as soon as possible after the diagnosis is made, in their instruction in the fundamental principles of treatment and prophylaxis which they will find embodied in the rules of the Sanatorium and upon their discharge from the institution and return to the Dispensary—the maintenance of close contact between the Dispensary and their homes until the cure is accomplished. The Dispensary thus serves as a "feeder" to the Sanatorium and as its post graduate or "continuation school." One of its most important functions is the supervision of the patient at that most critical stage of his convalescence when he is undergoing gradual readjustment to his former conditions of life. The patient must be guarded against dissipating his recently acquired energy, either in work or in pleasure, and he should receive assistance in removing from his environment those harmful influences, to which, previously he had been indifferent.

The physician in charge of a Tuberculosis Dispensary must be an expert in psychology and sociology, as well as in diagnosis and therapeutics. He should have real sympathy, infinite patience, and abiding enthusiasm. He must avoid the old fashioned error of concealing his diagnosis, and, for the sake of the patient and those about him, learn to tell the truth without hesitation. By the exercise of the proper amount of tact this may be accomplished with results which are found to be wholly beneficial. It is usually impossible to persuade a patient to do what is required of him unless he is properly impressed with the gravity of the situation. But to do so without adding to his burden of discouragement requires considerable delicacy and sound judgment.

As a servant to the community the Dispensary chief acts as a resourceful advisor to the public and a willing consultant to his neighboring practitioners, but must, at all times, carefully preserve the integrity of his professional relations. In addition, he must guard the Dispensary against abuse by the ineligible. Beside his other duties, it is necessary for him to devote a generous portion of his time to the perplexities of the nurse.

The "tuberculosis nurse" should be the highest type of social worker, demonstrating in the home the application of the principles taught the patient by the physician in the Dispensary and noting the needs of the family with professional appreciation. She should gain the utmost confidence of those in her charge, entering into their lives in such a way that she may be able to interpret their problems to the physician with the completeness necessary to their successful solution. The nurse should study the resources of her community, particularly such assets as Boards of Charity and Benevolent Associations. At the offices of such organizations she should become a welcome, as well as a familiar figure, for frequently the activities of one merge with those of the other and by good "team work" results are attained, which otherwise, would have been impossible. In addition to teaching patients and their families the reasons for faithful observance of the regulations laid down by the physician and the ease of their application, the nurse should institute general measures for the material assistance of her charges. A most vital function is instruction in the choice of food and its proper preparation. The elimination of the frying pan as a household god and the conviction that tea and beer are not satisfying as substitutes for food (even for children!) are objects which require patient demonstration and spirited and oft repeated urging. The inculcation of the principles of child culture frequently meets with equal difficulty but, when carried to a successful issue, brings about achievements which are still more glorious.

The most encouraging result of the work of the nurses of the Pennsylvania Tuberculous Dispensaries has been the improvement of patients, whose condition originally appeared to be most baffling. Such improvement is noted at regular intervals in "follow-up" reports, which comprise a complete investigation of the physical and social status of the "old" case and, particularly, the observance of the principles of healthful living. Improvement was general not only in the patient's physical condition but also, what is equally gratifying, in his mental attitude. The value of the education provided by Sanatorium and Dispensary was evident in improvised sleeping porches, open windows, rational cooking, cleanliness of person and surroundings, and a more intelligent comprehension of the sanitary requirements of places of employment and recreation. The example of one family has sometimes been the means of the reformation of an entire neighborhood.

In another way, the work of the Dispensary nurse in tracing patients is of great importance. The collection of statistics, concerning the later condition of patients who have been treated in a Sanatorium, is not a mere casual massing of figures. A clear and accurate statement about the status of a patient, two or four years after he has tried to resume an independent life, is the only means for gauging the success of our efforts to conquer Tuberculosis. Those who believe in the Sanatoria and Dispensaries, as potent aids to such a conquest, have no doubt regarding the results attained by this method of treatment. They know, too, that the results are sufficiently permanent to give ample justification for all of the expenditures involved. There is, however, also, the inquisitive taxpayer whose money makes these expenditures possible. He needs to be shown, definitely, the kind and extent of benefit which his money brings to the State. Thus far, our nurses have done well in searching out former patients and bringing in reports of their condition. As this work becomes more extensive and systematic, it should supply abundant proof of the efficacy of the system adopted by the Department to all who may be disposed to criticize.

There are a large number of patients who are unable, for one reason or another, to go to a Sanatorium, and must depend, wholly, upon the Dispensary for their care. These persons require more time and patience on the part of physician and nurse and more frequent visiting than those who have had the educational advantages of Sanatorium life. They miss the "esprit de corps" of the larger Institution, but this loss may be made good in large part by means of the class method of conducting the clinic.

When fellow-sufferers are gathered together for a short lecture or demonstration and are given an opportunity of comparing notes and observing each other's improvement, it is a source of greater encouragement to the patients and a greater inspiration to the physician than the reiteration of the same advice to one individual after another. The long waiting is avoided and the next meeting is anticipated with increased interest by all concerned.

As to the patient, himself, it is apparent that in nearly every instance he is a neurasthenic as well as a consumptive and is cursed with a vacillating disposition. Every effort should be made toward the conservation of his wavering energies of mind and body until he is able to adapt himself to the mode of life prescribed and learns to accept it, not with resignation, but with enthusiasm. When the cure is at last accomplished, there is no more zealous missionary of the simple life than the ex-patient, who frequently attributes his subsequent success in the world to the patience and determination he acquired in making his long campaign against the treacherous and stubborn foe.

The Bureau of Vital Statistics of the State Department of Health has estimated from the annual death rate in Pennsylvania and the number of cases of Tuberculosis, whose deaths are reported, that there are approximately sixty thousand consumptives in the State. Ten thousand of these are enrolled upon the lists of the State Dispensaries; two thousand are being cared for in the State Sanatoria and about twelve hundred are provided for by various private, semi-private and municipal Institutions. This leaves a balance of forty-seven thousand for whom there is no accounting. Our duty is to reach these unknown sufferers, who through ignorance, indifference, or neglect constitute a menace to the health of their own and of succeeding generations.

With these ideals in force in each one of the one hundred and sixteen Tuberculosis dispensaries provided by the State of Pennsylvania for the benefit of her people, and the educational propaganda spread by the ten thousand patients constantly on their rolls, results should be achieved with the careless, spitting, draught-dreading portion of our public, which will compel the admiration of the world.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 62. HARRISBURG, PA. OCTOBER, 1915.

ON THE UPFOLLOW OF SANATORIUM PATIENTS.

The Commonwealth of Pennsylvania has three Sanatoria which are conducted by the State Department of Health for the free treatment of persons afflicted with tuberculosis. The oldest of them is on a plateau among the hills known as the South Mountain of the Blue Ridge near Mont Alto Station in Franklin County. This Mont Alto Sanatorium was established in 1907 and for some years was called officially the Pennsylvania State South Mountain Sanatorium for Tuberculosis at Mont Alto. As the system extended it was decided to designate the establishments by numbers, and that near Mont Alto is now officially the "Pennsylvania State Sanatorium for Tuberculosis No. 1, Mont Alto," or simply "Mont Alto," or even merely "No. 1" when we have no time for a fuller title. The second Sanatorium at Cresson, up in the Allegheny Mountains, was opened at the beginning of 1913 and is officially "No. 2." The third Sanatorium is at Hamburg, a few miles north of Reading, in Berks County, and will be ready for patients before the end of this month.

These Sanatoria are open to the tuberculous of Pennsylvania who are unable to pay the charges for treatment in private hospitals. To obtain admission the sick person must go to one of the Tuberculosis Dispensaries maintained by the Department and be examined in order to procure a certificate that his condition requires treatment such as may best be obtained in a sanatorium. If he is found to be tuberculous his name is placed on the waiting list and as soon as a vacancy occurs he is notified to proceed to the Sanatorium. On his arrival he is again examined by some physician of the staff and then enters upon the "cure" or treatment under such restrictions as the stage of his disease and its complications may make desirable. It goes almost without saying that he is expected to conduct himself according to the general rules of the Sanatorium and to follow the special advice given him concerning the course to be pursued in his search for health. He is encouraged to remain until he has recovered to an extent to make it possible and safe for him to return to his home and there continue the kind of life which he has been taught to live in the Sanatorium. It is explained to him, with many reiterations, that the essentials of treatment consist in the proper use of fresh air, a nourishing diet, suitable clothing, and such exercise or work as his condition permits. Whether a return to the life of the family from which he came is prudent and desirable will depend upon the circumstances of each particular case.

Such is the theory. In practice, a certain small number leave the Sanatorium in a quite different fashion. Some are restless creatures and are unwilling to conform to the house rules, or make themselves otherwise obnoxious to their fellows, and dismissal follows as a necessary result of the discipline which must exist in such establishments if they are to succeed. Others tire of the inevitable routine or become homesick and demand to be discharged, even against advice, and failing this, desert, or do not return from such vacations as may be given them. Beyond the ordinary domestic control of the patients we have little absolute power over them. We can indeed say: go, and the patient must go; but we cannot say: come, or stay, and compel the patient to do either. Considering the social status of most of our patients, the number of dismissals and desertions, including the remain-aways, is not unduly large.

When a patient is about to leave the Sanatorium he is given instruction as to the conduct of his daily life at home in order to hold the gain made under treatment and to add to it if possible. He is urged by physicians and nurses to place himself anew under the supervision of the Dispensary through which he entered the Sanatorium and to report there from time to time even though his condition should be such as to require no medical aid. At the actual time of his home-going the Chief of his Dispensary is notified that the patient is returning to the district of that Dispensary and should be watched.

This postsanatorial watch is a definite part of the system of the State's care of its poor consumptives. It is our desire to trace out our former patients after they have returned home and to reinforce the good done by the Sanatorium by such further instruction as each may need, and to guard against lapses into bad methods of living. Such a plan of upfollowing the patients is also expected to inform us of the ultimate outcome of our treatment and thus make possible an estimate of the benefit of the sanatorium. The inherent defect of any such estimate is the difficulty of determining with any exactness the course and results of similar cases in the same social stratum which do not get sanatorium treatment.

Although this purpose was early formulated after the establishment of our first sanatorium, it was no simple task to carry it out. Our Dispensary staffs and particularly our Dispensary nurses needed experience and training before this line of work could be taken up with any degree of success. The development of a systematic pursuit of patients was slow and several years passed before any considerable body of statistics was gathered. It presently became clear that a definite series of questions would be helpful in making the reports more uniform and would also enable the staff of the Sanatorium to classify old patients on the basis of later findings. The preparation of such a set of questions was made known in 1911 and the full form used in the Dispensaries was published at the time. The form, first published in the *Journal* of the *American Medical Association,* is appended and is the form which has been used in gathering the material about to be presented. It is also the form in use at the present time but probably will be simplified for the work of 1915.

In possession of this form the nurse every six months searches out the patients who have been connected with her Dispensary and have not returned to it. If she finds them she gathers as much information as she can and fills in her form accordingly. She describes certain conditions of the persons so traced but she is not expected to make a diagnosis, in fact she is not permitted to do it. She makes every exertion to have them return to the dispensary. In case the patients visit the Dispensary, much if not all the information may be acquired there. So far as possible the information obtained comes from personal inspection by a trained nurse or physician and is not the result of correspondence nor the result of hearsay or other evidence of other persons except, of course, in the case of death. Thus our reports differ very materially from the reports of many other sanatoria in this country and abroad where resort is had to letters and circulars of inquiry sent out for the former patients to fill up as best they may. The forms thus filled out are copied; one copy goes to the Sanatorium, and one is retained among the records of the Dispensary. At the Sanatorium the necessary additions are made describing the status of the patient when admitted and at the time of discharge. The physician at the Sanatorium also draws a conclusion from the report as to the proper classification of the patient at the time of the examination. This final classification is made by an experienced physician for all the cases of the sanatorium and has a good basis of uniformity, not being dependent on the varying ability of the physicians or nurses of the different Dispensaries to draw conclusions. When the reports have been thus completed, cards for the counting machine, "punch cards," are prepared and with these the tabulations are made in the State Bureau of Vital Statistics of the Department of Health.

The actual inspection of former patients is by no means as simple as it sounds. Here as elsewhere you must first catch your patient. Many of those discharged from the Sanatorium do not return to their former homes at all, or they presently move away and are lost statistically. Others, many others, return to their former surroundings, but do not reappear at the Dispensary. Some of them feel much improved and consider further visits to the Dispensary quite unnecessary. Doubtless many of these actually do remain in good condition and go to work, and this view is held by numerous experienced physicians in charge of tuberculosis sanatoria in other parts of the world, particularly in Germany. The fact that over two-thirds (69.8%) of the patients that go out from Mont Alto are classed as "apparently cured," "arrested," or "improved" justifies the inference that many of them may feel no need of further supervision. Other patients are possibly weary of the search for health, or for other reasons have grown indifferent. A certain number of patients return to the family physician, having had a connection with a Dispensary merely because admission to sanatorium treatment is possible only in this way; or with an increased ability to earn money they may be in a position to pay a doctor. Such persons may still be accessible to the nurse. All these conditions and many more complicate the search of the uptracer much. Nor is it altogether a matter of industry and tact, although the possession of these qualities will undoubtedly help the nurse to find the estrays belonging to her Dispensary. Nurses, however, no less than patients are human.

The first full tabulation of the reports of nurses as returned to Mont Alto showed that only about forty-six per cent. of the patients who had gone out from that Sanatorium to live again among their fellows had actually been traced. In other words, close to fifty-four per cent. were "lost." How far this result may be attributed to the inexperience or possibly the inefficiency of some nurses it is difficult to decide. Our Dispensary reports indicate that only about forty per cent. of the discharged cases actually return to the Dispensaries from which they came or through which they gained admission to the Sanatorium, or indeed to any State Dispensary at all. This means that patients to the extent of some six per cent. or more have been found and investigated without coming again into personal relations to the Dispensary itself, and the activity of the nurse as a searcher must be given credit for this accomplishment. There is yet another aspect of the task of hunting former patients which should not be overlooked. Many Dispensaries minister to the needs of sparsely populated districts and the homes of their patients are often many miles away from the Dispensary rooms, increasing the difficulty of finding them.

The Sanatorium at Mont Alto has received its patients from all sections of the State. For the period in question nearly half of them came from Allegheny and Philadelphia counties. The percentage for the patients from counties furnishing over one per cent. are approximately these: Philadelphia, 35.1; Allegheny, 12.2; Dauphin, 5.4; Luzerne, 4.2; Cambria, 2.6; Delaware, 2.2; York, 2.1; Lackawanna, 1.7; Montgomery. 1.7; Blair, 1.6; Chester, 1.6; Erie, 1.6; Schuylkill, 1.6; Northumberland, 1.5; Westmoreland, 1.5; Lancaster, 1.4; Northampton, 1.4; Lycoming, 1.2; Washington, 1.1. Fourteen other counties furnished each between one and six-tenths of one per cent., and the admissions from the remaining thirty-four counties run under six-tenths of one per cent. for each county. The failure to return to the Dispensary is general all over the State and is by no means characteristic of counties where access to the Dispensaries may be supposed to be difficult.

At first glance the disappearance of about three-fifths of our discharged patients might seem to reflect upon the system, but when we consider the social strata represented and the enormous territory which has contributed these patients their statistical submergence grows less surprising. A comparison with other efforts to keep in touch with patients discharged from sanatoria for the tuberculous will show that our results need cause no discouragement.

There are not many available reports from other States which bear directly on this question. Certain small establishments, mostly with patients who are easy to follow, seem to "lose" relatively few. Here belong, as examples:— the Gaylord Farm Sanatorium of the New Haven County Tuberculosis Association, which reports only twelve out of 948 as "lost," or 1.3%; Bardswell, giving the results of a small English sanatorium for a very select class of patients and losing track of seven out of 222, or 3.1%; Farmer, dealing with persons sent to sanatoria through the Massachusetts General Hospital, has twenty untraced out of 343, or 5.8%; Bowditch, tracing 520 patients of the Sharon Sanatorium for the period of 1891-1911 had in 1912 a loss of eight per cent.; Trudeau, in his report of 1906 which notes 352 as unknown in a total of 2183, or 16.1%; K. von Ruck, in his Ashville statistics with 148 lost out of 605, or 24.5%; H. M. King, who in discussing the statistics of the Loomis Sanatorium notes 53 as not yet found out of 307 discharged from the main sanatorium, for the relatively well-to-do, or a loss of 17.6%, *but* for the "annex," which is run as a charitable institution, 73 out of 194 were not yet found, or 37.6%; the Council of Jewish Women, tracing in New

York city 978 persons discharged from the sanatoria at Otisville, Ray Brook, and Bedford Hills, found no trace at all of 424, or 43.4%, and for eight per cent. more it was merely determined that they had died. For certain other foreign sanatoria it may be noted that Turnau, dealing with those discharged from the Heiligenschwendi Sanatorium in the Swiss canton of Bern, was able by persistent letter writing to reduce the "lost" to 14% of 3679 discharged patients, and that F. Köhler, in an examination of the statistics of the Rossbach Sanatorium, established by the city of Cologne, found no returns from 36.2% of the former patients. For a sanatorium at Holsterhausen-Werden near Essen in the valley of the Ruhr a search for 1232 patients gone two years found all but twenty-three per cent., while an effort to find 365 who had been gone four years revealed a loss of nearly ten per cent. That report also deals with a very restricted territory. When we recall that Pennsylvania has about three times the area of Switzerland and about two and a half times the area of the combined provinces of Rhenish Prussia and Westphalia, it need not disturb us that we "lose" some fifty per cent. of our former patients. With more experience and under favorable conditions we shall do far better, for one of our Dispensary chiefs, Dr. Francine, at the end of 1912, in tracing 417 cases supposed to have returned to Philadelphia from Mount Alto in 1909, found all but eighteen, that is only 4.3% were "lost."

As the Sanatorium at Hamburg is not yet ready for patients and that at Cresson has been in service too short a time to furnish statistics of any value we have at present two reports which deal exclusively with the upfollow of patients of the Sanatorium at Mont Alto. These are condensed in two tables and two summaries which appear on pages 20 to 29 below.

Table I deals with patients discharged during the years 1907-1911 and in first half of 1912 for whom returns have been made from the Tuberculosis Dispensaries. Here it appears that the nurses succeeded in getting some information concerning 2867 persons making 4141 visits for this purpose. Somewhat more than one-fourth of these persons are reported as dead. The immediate cause of death does not appear in the report but in discussing the results it will be assumed that this outcome was due to tuberculosis and we shall thus give the figures the worst possible interpretation.

It will be seen that the 425 persons are noted as having "no data." This does not mean that these cases were altogether "lost" but merely that too little information was sent in to permit anything more than a statement that these persons were alive at some time during the period covered by the table. The defects in the reports are due in part to the unwillingness of the patients to give an account of themselves and in part to some neglect of the nurse to make complete records. In many instances such neglect on the part of the nurse was not discovered at the Sanatorium until it was too late to undertake a correction, in others it was possible to return the report and procure a more satisfactory record. Much of this trouble appears to have come from the inexperience of the nurses who did not appreciate the significance of the information they were directed to obtain. We shall see that the second report shows a distinct improvement in this respect. These 425 cases with "no data," nearly fifteen (14.8) per cent. of all traced, cannot be used in determining any details of the later conditions of these patients and must be removed from our calculations, leaving us 2442 cases available for further comparison.

The tabulation takes account of the classification on admission and discharge from the Sanatorium and also classifies the individuals according to their condition at the time of the last visit for which a report is made.

Table II presents the returns concerning patients who have been out of Mont Alto for various periods up to the time of the last upfollow in the autumn of 1913. The table deals with 2306 cases and for 201 of these, or nearly nine (8.7) per cent. the information obtained was so incomplete that the cases are entered as having "no data." The report of 1913 differs from that of 1912 in that the inadequate records are also entered according to the intervals. It also contains entries of six deaths having "no data" in the sense that the time of death was not properly determined which makes it impossible to assign the interval. These slightly disturb the calculations which we shall make, but the disturbance affects the result in most instances by fractions of one per cent. and these deaths will be omitted except in the general summaries.

These two tables are given in full so that the reader may calculate results from any other desired point of view if the discussion which follows does not appeal to him.

There is no simple way for combining figures of this kind of tabulation and the writers who have dealt with such calculations are not altogether in accord as to the tabulations themselves as well as to the method of drawing conclusions from them. The fact is that the status of a tuberculous patient after treatment is far too complex to render any tabulation quite satisfactory and conclusive. In the comparison of the results presented by different sanatoria we inevitably deal with considerable differences in the interpretation of the physical signs and consequently marked differences in the final conclusion as well as in the incidental prognosis. For the two tables now in question it may be well to remember that all the classifications are made in the same sanatorium and according to a uniform system, and are not subject to any variations which might occur were they made by the staffs of the various Dispensaries or were the nurses permitted to make any final statement as to the condition of the patients they have traced.

In general it is obviously desirable to carry along the grouping of the patients by the classification given them upon admission to the Sanatorium and we shall accordingly class them in this sense as incipient, moderately advanced, or far advanced cases although it may be convenient to speak of them as belonging to the first, second, or third of these classes.

In the tables the figures permit the reader to follow along the different subgroupings of the patients as they go out and compare them with the later returns but in order to get a larger view of the results further combination is necessary. When a case goes away classified as "progressive" his outlook for the future is of course bad and increasingly bad according to his admission classification as we go from the first to the third group. There can be little question that cases which go home as "apparently cured" or "arrested" do so with a reasonable expectation of remaining well. More uncertain is the grouping "improved" because here so much depends not merely upon the resistance which the patient has developed but also upon the circumstances of the new life upon which he enters. As some kind of combination is absolutely necessary the following method of grouping for prognostic purposes is tentatively presented. Let us think of cases of any series when discharged as "apparently cured," "arrested," or "improved" as presenting a not unfavorable outlook, better to be sure in the one set than in that next below it. By this we mean that they may be expected to remain as well as they are or even to make further improvement if they heed the lessons taught in the Sanatorium and live in a proper fashion. The amount of work they will be able to undertake does not permit of exact definition. We may then say of such persons in each of the three classes that they are discharged with a *favorable prognosis.* Over against these will stand the groups marked "progressive" and for these it is quite fair to say that they are discharged with an *unfavorable prognosis* which by no means excludes further and very marked further improvement as both tables abundantly show. Here of course the fibroid character of many lung lesions introduces much uncertainty as to the prognosis. As to the later condition of patients, the upfollow classification, or what may be called the posisanatorial status, it seems proper to combine "improved" and "stationary" as at least indicating no retrogression while "progressive" and especially "dead," as an ultra-progressive condition, must be taken together to indicate a distinct decline.

Interpreting the facts of the tables in this way, the two sets of summaries have been prepared which show the percentage of the cases discharged with a favorable prognosis, and holding their own after various intervals. A similar set of percentages shows the extent to which cases made improvement or held their own after being discharged with an unfavorable prognosis. The degree of retrogression or decline in each series is of course the difference between the tabulated percentage and one hundred. In a final column is given the total result in each of the three main series of cases.

Here it appears in the reports of 1912:—

That of 305 cases admitted as incipient and discharged with a favorable prognosis, 261, or eighty-six per cent., after various periods ranging from less than six months to more than forty-two months were holding their own; while of thirty-two cases discharged with an unfavorable prognosis, twenty-one, or sixty-six per cent., showed improvement or were no worse.

Of 815 cases admitted as moderately advanced and discharged with a favorable prognosis, 574, or seventy per cent., were still in good condition after similar intervals; and of 176 cases of this class leaving the Sanatorium with a distinctly unfavorable prognosis, as many as fifty-one, or twenty-nine per cent., showed improvement or were stationary.

In the third class, or among the far advanced cases, of 641 persons discharged with a favorable prognosis, 284, or forty-four per cent., were reported to be doing well or to be no worse after the same series of intervals as in the other classes; and even among the 473 persons of this class who went away with an unfavorable prognosis, sixty-four, or thirteen per cent., showed improvement or no retrogression.

Alongside this column of totals is another column carrying all the cases except those for which the visit of record falls in the period of "less than six months" after discharge. The reason for this exception is two fold. There is a regular time for hunting discharged cases but no regular time for discharge from the Sanatorium and in consequence a visit may catch patients who have been out only a few days or as long as six months. This of itself would not be a serious matter but for the fact that the discharges include a large number of persons who leave the Sanatorium with the probability of an early death and usually against advice. The number of the dead in the tables among those who have been out of the Sanatorium less than six months is very striking. The dead in the reports for 1912 number 784 of which 417 occurred less than six months after discharge. Of these 417 deaths, 234, or fifty-six per cent., were in the group of far advanced cases. The dead of the reports of 1913 number 700 and of these 312 occurred less than six months after discharge. Of these 312 cases, 204, or sixty-five per cent., belong in the group of far advanced cases. In these figures are not included the dead with "no data." These facts are no disparagement of the results of a stay in the sanatorium as is readily seen when we examine the record of the discharges. That record shows that nearly half of those discharged each year belong to the far advanced stage of tuberculosis and that many of these, over a fourth, go out after a stay of *less* than three months *and* with a particularly bad outlook being classed as "progressive." This means that persons in very large numbers annually leave the Sanatorium doomed to an early death. Had they remained they would have died comfortably at Mont Alto and without risk for those about them, but they have chosen to return home and the result is a large increase of the deaths among the discharged patients and an unwelcome perversion of the statistics. This alone is a good reason for deferring the first upfollow of former patients for a longer period than six months. In certain other cases an upfollow report made less than six months after leaving the Sanatorium should be used with caution or not at all. Many persons in all the different groups leave the Sanatorium against advice and at a time when they are ill-fitted to take up the family life again. We have no power to restrain them if they insist on going. These persons are particularly prone to relapse and thus losing such improvement as they have made, they decline rapidly and often die soon. This is the probable explanation of the numerous deaths in the first six months among other patients for whom the outlook was rather more favorable and might have been yet more favorable had the treatment lasted longer. The column containing the totals for cases examined six months and more after discharge gives even more favorable results concerning the later condition of our patients and for the reasons already given is probably a juster tabulation.

The summary of the upfollow for 1913 is similar in character but the results are not quite as good. Here is appears:—

That of 329 persons admitted as incipient and discharged with a favorable prognosis, 267, or eighty-one per cent. were found to be improved or stationary; while of the twenty-five discharged with an unfavorable prognosis, fourteen, or fifty six per cent. were improved or stationary.

Of 711 persons admitted as moderately advanced and discharged with a favorable prognosis, 490, or sixty-nine per cent. were found to be improved or stationary; while of 137 discharged with an unfavorable prognosis, forty, or twenty-nine per cent. were improved or stationary.

Of 477 persons admitted as far advanced and discharged with a favorable prognosis, 188, or thirty-nine per cent. were found to be improved or stationary; while of 426 discharged with an unfavorable prognosis, only thirty-eight, or nine per cent. were found to be improved or stationary.

Removal of the examinations made less than six months after discharge also benefits the report of 1913, and the results more nearly resemble those of 1912.

The cases marked "stationary" are the most likely to offer difficulty in the interpretation of reports of this kind, and any effort to individualize the records would probably only add to the difficulty. It may be worth while, however, to estimate the results if we consider only "improved" as indicating a satisfactory condition of the persons traced. This is of course making the worst possible interpretation of the figures since the "stationary" cases of certain groups really mark a most excellent outcome of the treatment. Limiting our tables in this fashion the results are as follows:—

FOR THE UPFOLLOW OF 1912:—

Incipients with a favorable prognosis	= 305		
Such returned as "improved"	= 151	= 49.5%	
Correction by omission of reports "less than six months" gives			51.6%
Incipients with an unfavorable prognosis	= 32		
Such returned as "improved"	= 15	= 46.9%;	corrected = 56.0%
Moderately advanced with a favorable prognosis	= 815		
Such returned as "improved"	= 339	= 41.6%;	corrected = 42.4%
Moderately advanced with an unfavorable prognosis	= 176		
Such returned as "improved"	= 29	= 16.5%;	corrected = 23.9%
Far advanced with a favorable prognosis	= 641		
Such returned as "improved"	= 123	= 19.2%;	corrected = 21.6%
Far advanced with an unfavorable prognosis	= 473		
	= 30	= 6.3%;	corrected = 13.5%

FOR THE UPFOLLOW OF 1913:—

Incipients with a favorable prognosis	= 329		
Such returned as "improved"	= 158	= 48.0%;	corrected = 48.8%
Incipients with an unfavorable prognosis	= 25		
Such returned as "improved"	= 9	= 36.0%;	corrected = 39.1%
Moderately advanced with a favorable prognosis	= 711		
Such returned as "improved"	= 261	= 36.7%;	corrected = 36.9%
Moderately advanced with an unfavorable prognosis	= 137		
Such returned as "improved"	= 28	= 20.4%:	corrected = 23.1%
Far advanced with a favorable prognosis	= 477		
Such returned as "improved"	= 86	= 18.0%;	corrected = 19.2%
Far advanced with an unfavorable prognosis	= 426		
Such returned as "improved"	= 23	= 5.4%;	corrected = 10.6%

The two upfollow reports contain general information as to the extent to which these persons were found to be at work, but without detail as to the kind or change of occupation. This information may be tabulated as follows:—

SUMMARY OF INFORMATION REGARDING OCCUPATION PRESENTED IN THE UPFOLLOW REPORTS.

A. INCIPIENTS.

	1912		1913	
	Males	Females	Males	Females
With occupational data	157	163	178	168
Under occupational age	18	7	30	10
Not formerly occupied	10	26	21	24
but now occupied	5	16	14	12
Formerly occupied	129	130	127	134
and now occupied	96 (74.4%)	114 (87.7%)	104 (87.9%)	102 (76.1%)

Of 139 men of occupational age, 101, or 72.2%, are occupied.
Of 156 women of occupational age, 130, or 83.3%, are occupied.
Altogether, 231 of 295, or 78.3%.

Of 148 men of occupational age, 118, or 79.7%, are occupied.
Of 158 women of occupational age, 114, or 72.1%, are occupied.
Altogether, 232 of 306, or 75.8%.

B. MODERATELY ADVANCED.

	1912		1913	
	Males	Females	Males	Females
With occupational data	405	372	332	341
Under occupational age	5	9	8	11
Not formerly occupied	29	29	22	42
but now occupied	12	18	10	25
Formerly occupied	371	334	352	288
and now occupied	237 (63.1%)	262 (78.4%)	204 (57.9%)	214 (74.3%)

Of 400 men of occupational age, 249, or 62.2%, are occupied.
Of 363 women of occupational age, 280, or 77.1%, are occupied.
Altogether, 529 of 763, or 69.3%.

Of 374 men of occupational age, 214, or 57.2%, are occupied.
Of 330 women of occupational age, 239, or 72.4%, are occupied.
Altogether, 453 of 704, or 64.3%.

C. FAR ADVANCED.

	1912		1913	
	Males	Females	Males	Females
With occupational data	316	245	252	166
Under occupational age	0	5	2	3
Not formerly occupied	9	20	9	·24
but now occupied	1	10	1	9
Formerly occupied	307	220	241	139
and now occupied	140 (45.6%)	126 (57.3%)	112 (46.5%)	77 (55.4%)

Of 316 men of occupational age, 141, or 44.6% are occupied.
Of 240 women of occupational age, 136, or 56.7%, are occupied.
Altogether, 277 of 556, or 49.8%.

Of 250 men of occupational age, 113, or 45.2%,are occupied.
Of 163 women of occupational age, 86, or 52.8%, are occupied.
Altogether, 199 of 413,, or 48.2%.

The reports contain various other details concerning the patients who have been traced. All these matters appear in the annual reports of the Department for 1912 and 1913, which are now in the hands of the printer, and may be omitted here as having little bearing on the main question of the results of treatment which it is the purpose of this paper to present.

From the tables and comparisons given above the conclusion is easily reached that the later condition of the patients who have been under treatment at Mont Alto demonstrates quite clearly that the treatment is beneficial and that the good done endures. It remains to inquire whether our results are comparable with those obtained in other sanatoria.

Such a comparison is not altogether easy. The number of detailed reports of this kind is not large and the method of tabulation unfortunately is not uniform. The classification as to the condition on discharge varies somewhat in form and probably differs still more in the practical application.

Regarding a certain number of cases which appear in the above upfollow of Mont Alto patients we have the special investigation made by Dr. A. P. Francine. The detailed report of this investigation was presented in a paper read before the National Association for the Prevention of Tuberculosis in May, 1913 and will also appear in the annual report of the Department of Health for that year. The persons examined belong in Philadelphia and had been discharged from Mont Alto in the course of 1909. They were hunted up by nurses of the Dispensary which is in charge of Dr. Francine and each was examined and the condition determined. The data thus obtained were to some extent supplemented by physical re-examination in the Dispensary between December, 1912 and February, 1913. The upfollow classification was made on the basis of the reports of the nurses and such physical examinations as were made. This excellent report has the advantage that it contains an independent interpretation of nearly four hundred cases which appear in the tables above. Altogether 399 patients were found to be available for this statistical inquiry. This number was reached by excluding twenty-six persons who had remained at the Sanatorium only thirty days or less, and also eighteen who could not be traced because of removal from Philadelphia. The classification used by Dr. Francine differs from that used in compiling the tables for the entire State and our results are not directly comparable. In a supplementary fashion he also uses the new classification of the National Association which is ill adapted to the study of the results of sanatorium treatment because of the requirement that two years must elapse before the full determination can be made. In the terms of this classification the state of 399 cases is given as follows for the three classes of the admission clossification.

	I			II			III		
Apparently cured	43	=	79.6%	70	=	41.9%	19	=	10.7%
Arrested	2	=	3.7%	5	=	3.0%	4	=	2.2%
Apparently arrested	3	=	5.5%	19	=	11.4%	2	=	1.1%
Quiescent	3	=	5.5%	9	=	5.4%	7	=	3.9%
Unimproved	1	=	1.8%	14	=	8.4%	22	=	12.3%
Dead	2	=	3.7%	50	=	29.9%	124	=	69.7%

It will be seen that these percentages are fairly in accord with the calculations already given for the entire State except that the result for the far advanced cases (III) is less favorable; even if we count the quiescent cases as equivalent to the "stationary" cases of the other tabulation the showing for group III seems less good. These differences may be due to diagnostical variations, where possibly the personal equation is large, or it may equally well be that the conditions in Philadelphia are distinctly less favorable to far advanced cases such as return to that city from Mont Alto.

The paper of Dr. H. M. King* has served as a pattern for many investigators but the number of those who really have followed in his steps is not large. Dr. King's endeavor was "to analyze the results of treatment of patients in Loomis Sanatorium over a period of four years (1902 to 1905 inclusive) as determined by the status of these patients on October 31, 1911, or from six to nine years after their discharge from the institution." He did this well knowing that he must deal with relatively small numbers and that no general conclusions could be made.

The number of persons discharged during the period in question was 995, but many were excluded from the analysis for good reasons which need not busy us here. There were finally available for study 547 patients, 407 from the Main Sanatorium, and 140 from the "Annex" which is the charitable and semi-charitable branch of the institution. The discharge classification of these cases was based on the scheme of the National Association (Apparently Cured, Arrested, Improved, and Unimproved). The upfollow classification carries: "Health Satisfactory," those that are well and living under ordinary conditions; "Health Unsatisfactory" for those living under conditions of invalidism; "Status doubtful" where practically nothing more is known than that the persons are alive. and this title seems to correspond to the "no data" of the Mont Alto tables.

To make a comparison with our statistics we may count "health unsatisfactory" as equivalent to our "progressive" and must eliminate the "status doubtful" just as we removed the "no data" cases from our lists. Dr. King does not remove these doubtful cases, but he could improve his percentages if he did remove them as he has every right to do since he only knows that they are alive; they may be good or bad cases but as they are admittedly "doubtful" the simplest procedure is to drop them. The Loomis figures treated in this fashion give us this table:—

	Main Sanatorium.			Annex.			Combined.		
Admission Classification	I.	II.	III.	I.	II.	III.	I.	II.	III.
Discharged with a favorable prognosis	55	109	130	16	37	49	71	146	179
Found with "Health satisfactory"	42	48	20	10	13	11	52	61	31
Per cent.	76.4	44.0	15.4	62.5	35.1	22.4	73.2	41.8	17.3
Discharged with an unfavorable prognosis	0	11	87	0	5	18	0	16	105
Found with "Health satisfactory"	0	1	1	0	0	0	0	1	1
Per cent.	0.0	9.1	1.1	0.0	0.0	0.0	0.0	6.2	0.9

It appears from this tabulation that the outcome for the cases from the main sanatorium is on the whole better than for those from the annex. Assuming the classifications of the two sets of reports to be comparable the results for the Loomis Sanatorium are distinctly less good than those for Mont Alto. In this report there is no account of the occupations of the patients.

---

*A Preliminary Study of the Value of the Sanatorium Treatment. National Association for the Study and Prevention of Tuberculosis. Eighth Annual Meeting, 1912. Pp. 82-112.

The statistics gathered in New York City under the auspices of the "Council of Jewish Women"* are also of much interest. For the purpose of this investigation the Municipal Sanatorium at Otisville, the State Sanatorium at Ray Brook, and the Montefiore Home Country Sanatorium at Bedford Hills were asked to give the names and last addresses of patients who had left these sanatoria and were presumably to be found in New York City. In this way were obtained the names of 978 (only 975 with information as to classification) persons who had been discharged between 1904 and 1910. As noted above, 424, or 43.3%, were "lost"; two-thirds of these belonged to class of incipients and only seven per cent. had been admitted as far advanced. For the 554 "found," 140 were known to be dead and 414 alive, but for 138 the history is incomplete. If these strictly correspond to the "no data" of the Mont Alto tabulations the proportion of incomplete information is much larger.

The report of the Council presents much suggestive information but it tabulates its figures relating to the final classification in such a way as to make comparisons, particularly a comparison with the Mont Alto figures, difficult if not impossible. In each group a number of persons (somewhat less than half, except among the far advanced cases) could be physically examined for the determination of the actual condition and the rest of each group was assumed to present the same picture. This inference may be correct, but, in view of the small numbers dealt with, it may equally well be incorrect. The cases thus tabulated, by virtue of a guess as to more than half of them, number 413 and according to Table I this guess appears to include the persons known to have left New York but to be still alive and a slightly larger number found to be alive but with an incomplete history. If we accept the upfollow condition of the patients thus assumed it would appear that of the incipient cases discharged with a favorable prognosis, in the same sense as above, 76.7% were finally found to be in fair condition; for the moderately advanced cases the proportion was 76.4%; and for the far advanced it was 43.5%.

The Council also examined the question of occupation but was able to obtain exact information from only 228 persons. Of 153 men who worked before admission to the sanatorium, 109, or 71.2%, were at work after discharge, and of 75 women formerly at work, 54, or 72.0%, were again at work.

---

*The Subsequent History of Patients Discharged from Tuberculosis Sanatoria. Department of Health of the City of New York. Monograph Series No. 8; October, 1913.

†Ninth Annual Report of the New Haven County Anti-Tuberculosis Association relating to the work of the Gaylord Farm Sanatorium. Medical Supplement for the Year ending April 30, 1913.

The tabulation made by Dr. D. R. Lyman of the after results of treatment of cases in the Gaylord Farm Sanatorium† is interesting although the numbers dealt with are not large. He reports the condition of 948 persons on May 1, 1913, being all the discharged patients who had been out of this Sanatorium six months or more, and of these only twelve, a little over one per cent., were "lost." No details are presented regarding this very efficient tracing of the patients. The classification used comprises "apparently cured," "arrested," "improved," "progressive," and "died." If we combine the figures in the same way as was done with the Mont Alto reports we have the following summary:—

UPFOLLOW SUMMARY FOR GAYLORD FARM SANATORIUM.

	I. Inc.	II. Mod. Adv.	III. Far Adv.
Discharged with a favorable prognosis	198	483	76
Found to be "apparently cured," "arrested" or "improved"	181	333	20
Per cent.	91.4	68.9	26.3
Discharged with an unfavorable prognosis	6	86	87
Found to be "apparently cured," "arrested" or "improved"	3	9	3
Per cent.	50	10.5	3.4

One of the tables shows the working capacity of the patients that were traced. In this tabulation housework and attendance at school are counted as work, a classification which will at least satisfy the child. Of 204 incipients, 182, or 89.2%, had gone to work, 151 returning to former work while thirty-one took up new work. Of those that went back to their old work twelve failed; of the thirty-one taking up new work only one failed, and that at housework. Of 569 persons of the moderately advanced class, 378, or 66.4%, went to work. Of these, 283 returned to their former occupations and here fifty-three, almost nineteen per cent., were unsuccessful. New work was undertaken by ninety-five and one-third of these failed. Among the far advanced only about a fifth, thirty-two out of 163, went to work, twenty-one going back to their old work at which half of them were failures, the other eleven taking up new work and at this four of them failed.

Even more interesting is the table of the earnings of all discharged patients up to the end of April, 1913. A comparison of these earnings with the cost of maintaining the sanatorium plus the interest on the money invested in the plant shows a balance equal to somewhat more than twice the entire expenditure, so that the community as a whole seems to have made a pretty good investment. Unfortunately we have no data for a similar estimate of the public sanatoria of Pennsylvania.

The report of Trudeau on the condition in 1906 of patients discharged from 1885 to 1905 is in part available for a comparison. This deals with the history of 2183 patients who went away from

Saranac alive. For 352 of them the record is "unknown" so that somewhat more than sixteen per cent. are lost and statistically useless. This leaves us 1831 persons who are grouped in the upfollow of the three classes as "well," "alive," and "dead." The discharge classification is given as "apparently cured," "disease arrested" and "disease active" which permits us to combine the first two as discharges with a favorable prognosis as we have used that designation in this paper. As we cannot define those that are "alive" in the terms of our classification the results are possibly not as fair to Saranac as ours are to Mont Alto. Counting "alive" as showing a condition similar to "progressive," an assumption which may be distinctly unjust, we have the following:

SUMMARY FOR THE SARANAC CASES.

	I.	II.	III.
Discharged with a favorable prognosis	448	678	36
Found to be "well"	248	230	2
Per cent.	55.3	33.9	5.5
Discharged with an unfavorable prognosis	60	422	187
Found to be "well"	19	31	1
Per cent.	31.7	7.3	0.5

In the little book* of N. D. Bardswell a similar upfollow classification is used for the patients of a small sanatorium in England. This report deals with the record of 215 well-to-do patients traced in 1909, mostly by correspondence, four to nine years after discharge. Of fifty-seven incipients who went out with a favorable prognosis forty-six, or 79.3%, were found to be "well." Of eighty-five moderately advanced cases with a favorable prognosis, forty-seven or 55.3%, were recorded as "well." Of forty-nine far advanced cases with a favorable prognosis only six, or 12.2%, were "well." All of twenty-four cases discharged with an unfavorable prognosis were dead.

The report of Bowditch and Griffin† for the Sharon Sanatorium does not present a detailed classification but summarizes the results. A search was made for 520 patients who had been out of the sanatorium at least a year and of these, forty-two, or eight per cent., could not be traced. Of 272 discharged as "arrested" or "cured" 237, or 87.1 per cent., were recorded as alive and for the most part in excellent health. Of 158 discharged as "improved," fifty-one, or 32.3 per cent., were reported to be in good condition. All the patients discharged as "not improved" were reported to be dead.

The classification "well" and "alive" is also used in the paper of G. L. Farmer.‡ This deals with the upfollow of 323 patients sent to public sanatoria of that State through the Social Service Department of the Massachusetts General Hospital. More were sent to the sanatoria but for the final estimate a number of cases were excluded on account of the shortness of their sojourn or because they were "lost." The final classification is based on the condition of these persons at times after discharge which range from six months or less up to seven years; there are twenty-nine with an interval of "six months or less" and three classified seven years after discharge. The details are elaborated in various tables. "Well" is used in general as meaning working or able to work; "alive" includes some who work but are ill. Under "alive" are also included an undefined number of persons of whom nothing is known except that they are not dead, a fact which weakens the force of the calculation as such cases are equivalent to our "no data." Taking the figures as they stand they permit the following:—

---

*The Expectation of Life of the Consumptive after Sanatorium Treatment. 1910.

†After-results in Tuberculous Patients treated during the Years 1891-1911 at the Sharon Sanatorium. Journal A. M. A. (1912), lix:2132.

‡Is Sanatorium Treatment Worth While? Reprint from Boston M. & S. Journal 1914, clxx;411.

SUMMARY OF THE FARMER STATISTICS.

	I.	II.	III.
Discharged with a favorable prognosis	115	134	42
Found to be "well"	82	62	7
Per cent.	71.3	46.3	16.7
Discharged with an unfavorable prognosis	2	13	17
Found to be "well"	0	1	0
Per cent.	0.0	7.7	0.0

At this writing detailed material is not accessible for any extended comparison of the Mont Alto tables with the results attained in the European sanatoria. On another occasion we hope to take up this question.

F. Köhler has made several statistical summaries which may be quoted as throwing light on the benefit of sanatorium treatment in Germany. In 1905 he obtained from the Sanatorium at Rossbach, conducted by the city of Cologne, a report of the condition of patients who had been out two years. He found that 39.5% had been fully able to work, 8.8% partially able, 4.4% quite incapacitated for work, 12.1% dead, and for 36.2 per cent. there was no information. The director of the sanatorium was of the opinion that of those who gave no account of themselves fully half were at work or able to work, and that a just estimate of the proportion of those able to work was 58-60%. In 1908 Köhler made a more extended tabulation concerning the permanency of the results of treatment in certain German sanatoria presenting the general conclusion that two years after discharge about sixty per cent. of all treated were fully able to work and after four years about fifty-five per cent. were in this condition. His tabulation follows:—

WORKABILITY OF FORMER PATIENTS OF GERMAN SANATORIA.

	Traced after two years.	Traced after four years.
Fully able to work	741 = 60.1%	196 = 53.6%
Partially able to work	218 = 17.7%	49 = 13.4%
Incapacitated	89 = 7.2%	27 = 7.7%
Dead	184 = 15.0%	93 = 25.3%

In the year 1911 the same investigator made another summary of certain statistics and published the following table:—

STATUS OF FORMER PATIENTS.

	After two years.	After four years.	After six years.
With full working capacity	61.7%	56.3%	51.7%
With partial working capacity	17.5%	15.8%	11.6%
Incapacitated	6.6%	6.0%	7.6%
Dead	14.2%	21.9%	29.1%

In one of the Public Health Reports of last December (Vol. XXVIII, p. 2815) was published an abstract of a recent report on the condition of the fight against tuberculosis in Switzerland. There are twelve public sanatoria in that country for the treatment of tuberculosis in addition to the very numerous private establishments which exist for the same purpose and are much frequented by outlanders and well-to-do Swiss. For three of the public sanatoria, Heiligenschwendi, Davos, and Wald, the later condition of former patients has been traced with reference to their ability to work. The results appear in this table:

		After the Lapse of:			
Stage.	Condition.	One year.	Two years.	Three years.	Four years.
Incipient	Able to work	98.5%	88.1%	84.9%	80.3%
	Unable to work	1.1%	4.5%	4.1%	6.0%
	Dead	0.4%	7.4%	11.0%	13.7%
Moderately advanced	Able to work	88.2%	81.5%	45.4%	32.5%
	Unable to work	3.3%	2.6%	8.8%	5.3%
	Dead	3.5%	15.9%	45.8%	62.2%
Far advanced	Able to work	37.0%	25.2%	15.7%	6.1%
	Unable to work	11.1%	8.5%	4.2%	2.4%
	Dead	51.9%	66.3%	80.1%	91.5%
All stages	Able to work	77.4%	62.2%	50.2%	35.3%
	Unable to work	4.7%	5.4%	5.6%	4.4%
	Dead	17.9%	32.4%	44.2%	60.3%

TABLE I. (RE-

ADMISSION, DISCHARGE, AND FOLLOW-UP CLASSIFICATION, SHOW-

FOLLOW-

Admission Classification.		Discharge Classification.		Follow-up Classification.
Incipient	396	Apparently cured	36	No data
				Improved
				Stationary
				Progressive
				Dead
		Arrested	161	No data
				Improved
				Stationary
				Progressive
				Dead
		Improved	157	No data
				Improved
				Stationary
				Progressive
				Dead
		Progressive	42	No data
				Improved
				Stationary
				Progressive
				Dead
Moderately advanced	1188	Apparently cured	50	No data
				Improved
				Stationary
				Progressive
				Dead
		Arrested	365	No data
				Improved
				Stationary
				Progressive
				Dead
		Improved	573	No data
				Improved
				Stationary
				Progressive
				Dead
		Progressive	200	No data
				Improved
				Stationary
				Progressive
				Dead

PORTS OF 1912).

ING INTERVALS BETWEEN SANATORIUM DISCHARGE AND LAST UP VISIT.

	Interval Since Discharge.							
	Less than 6 months.	6-12 months.	12-18 months.	18-24 months.	24-30 months.	30-36 months.	36-42 months.	Over 42 months.
4	......	......	......	......	......	......	......	......
11	......	2	1	2	6	......	......	......
18	......	9	5	3	1	......	......	......
3	......	1	1	1	......	......	......	......
......	......	......	......	......	......	......	......	......
21	......	......	......	......	......	......	......	......
74	11	14	19	5	8	10	6	1
54	10	17	9	4	8	3	3	......
8	1	5	......	......	2	......	......	......
4	4	......	......	......	......	......	......	......
24	......	......	......	......	......	......	......	......
66	9	15	11	8	12	2	8	1
38	10	8	11	2	5	......	2	......
20	2	8	5	3	1	......	1	......
9	4	1	2	......	1	......	......	1
10	......	......	......	......	......	......	......	......
15	1	4	2	......	4	1	2	1
6	......	3	......	2	......	......	1	......
7	3	......	3	......	1	......	......	......
4	3	......	1	......	......	......	......	......
9	......	......	......	......	......	......	......	......
11	1	2	6	......	2	......	......	......
26	7	4	5	7	3	......	......	......
2	......	1	......	1	......	......	......	......
2	1	......	......	1	......	......	......	......
47	......	......	......	......	......	......	......	......
152	20	34	29	23	17	10	16	3
103	10	30	19	14	11	6	11	2
39	5	11	5	10	6	......	2	......
24	3	4	4	3	4	4	2	......
117	......	......	......	......	......	......	......	......
176	30	45	19	21	21	15	18	7
106	13	28	18	6	8	14	14	5
83	14	25	14	12	5	5	8	......
91	32	22	16	8	8	4	1	......
24	......	......	......	......	......	......	......	......
29	8	2	9	3	1	5	......	1
22	9	6	2	......	2	1	1	1
28	10	8	6	2	......	1	......	1
97	61	14	11	3	6	......	2	......

TABLE II. (REPORTS

Admission Classification.		Discharge Classification.		Follow-up Classification.
Far advanced	1283	Apparently cured	9	No data Improved Stationary Progressive Dead
		Arrested	176	No data Improved Stationary Progressive Dead
		Improved	577	No data Improved Stationary Progressive Dead
		Progressive	521	No data Improved Stationary Progressive Dead

OF 1912)—Continued.

	Interval Since Discharge.							
	Less than 6 months.	6-12 months.	12-18 months.	18-24 months.	24-30 months.	30-36 months.	36-42 months.	Over 42 months.
2	....	....	....	......	......	......	......	......
2	....	....	1	1	......	......	......	......
3	....	1	....	1	1	......	......	......
1	....	1	....	......	......	......	......	......
1	1	....	....	......	......	......	......	......
34	....	....	....	......	......	......	......	......
42	4	11	11	6	4	4	2	......
62	10	14	14	10	6	2	6	......
22	2	4	4	4	4	3	1	......
16	3	6	6	1	......	......	......	......
85	....	....	....	......	......	......	......	......
79	12	15	12	7	6	7	17	3
96	24	17	10	8	14	8	11	4
106	19	27	26	11	8	5	9	1
211	71	74	29	17	10	6	3	1
48	....	....	....	......	......	......	......	......
30	6	6	5	3	2	......	7	1
34	18	2	4	5	1	3	1	......
84	37	15	15	4	4	4	4	1
325	234	52	23	8	5	1	1	1

TABLE I. (REPORTS

ADMISSION, DISCHARGE, AND FOLLOW-UP CLASSIFICATION, SHOW-
FOLLOW-

Admission Classification.		Discharge Classification.		Follow-up Classification.
Incipient	387	Apparently cured	62	No data
				Improved
				Stationary
				Progressive
				Dead
		Arrested	164	No data
				Improved
				Stationary
				Progressive
				Dead
		Improved	135	No data
				Improved
				Stationary
				Progressive
				Dead
		Progressive	26	No data
				Improved
				Stationary
				Progressive
				Dead
Moderately advanced	954	Apparently cured	52	No data
				Improved
				Stationary
				Progressive
				Dead
		Arrested	312	No data
				Improved
				Stationary
				Progressive
				Dead
		Improved	435	No data
				Improved
				Stationary
				Progressive
				Dead
		Progressive	155	No data
				Improved
				Stationary
				Progressive
				Dead

OF 1913).

ING INTERVALS BETWEEN SANATORIUM DISCHARGE AND LAST UP VISIT.

	Interval Since Discharge.								
	Less than 6 months.	6-12 months.	12-18 months.	18-24 months.	24-30 months.	30-36 months.	36-42 months.	Over 42 months.	No data.
5	1	3	......	......	1	......	......	......	......
22	3	6	1	4	1	6	1	......	......
29	1	15	4	5	2	2	......	......	......
4	......	1	1	......	2	......	......	......	......
2	1	......	1	......	......	......	......	......	......
15	4	4	1	2	2	1	1	......	......
88	5	23	8	12	14	17	7	2	......
46	9	8	8	4	6	8	3	......	......
15	1	4	4	1	1	4	......	......	......
0	......	......	......	......	......	......	......	......	......
12	3	4	2	......	3	......	......	......	......
48	5	13	6	6	4	11	3	......	......
34	3	14	4	5	3	3	2	......	......
28	1	9	4	3	4	5	2	......	......
13	3	6	1	2	1	......	......	......	......
1	......	1	......	......	......	......	......	......	......
9	......	2	......	......	2	3	1	1	......
5	......	2	1	......	......	......	2	......	......
4	......	1	......	3	......	......	......	......	......
7	2	4	......	......	1	......	......	......	......
4	1	......	1	......	......	2	......	......	......
15	1	4	1	......	4	5	......	......	......
27	2	4	6	4	5	4	2	......	......
5	1	......	......	1	3	......	......	......	......
1	1	......	......	......	......	......	......	......	......
26	1	15	3	1	1	4	1	......	......
104	13	30	10	5	18	19	5	4	......
108	10	29	19	15	17	13	5	......	......
56	3	18	10	7	12	2	3	1	......
18	......	7	3	3	3	......	......	1	1
58	9	20	8	7	4	5	2	3	......
142	12	40	18	20	15	11	17	9	......
94	8	30	11	8	14	10	8	5	......
69	7	27	12	11	4	4	2	2	......
72	17	19	16	9	6	1	4	......	......
18	3	12	1	......	1	......	1	......	......
28	1	9	5	5	4	2	2	......	......
12	2	5	2	1	1	0	1	......	......
26	2	12	2	6	3	1	......	......	......
71	33	21	12	4	......	......	......	......	1

TABLE II. (REPORTS

Admission Classification.		Discharge Classification.		Follow-up Classification.
Far advanced	965	Apparently cured	2	No data
				Improved
				Stationary
				Progressive
				Dead
		Arrested	135	No data
				Improved
				Stationary
				Progressive
				Dead
		Improved	377	No data
				Improved
				Stationary
				Progressive
				Dead
		Progressive	451	No data
				Improved
				Stationary
				Progressive
				Dead

OF 1913)—Continued.

	Interval Since Discharge.								
	Less than 6 months.	6-12 months.	12-18 months.	18-24 months.	24-30 months.	30-36 months.	36-42 months.	Over 42 months.	No data.
1	......	1	......	......	......	......	......	......	......
1	......	1	......	......	......	......	......	......	......
0	......	......	......	......	......	......	......	......	......
0	......	......	......	......	......	......	......	......	......
0	......	......	......	......	......	......	......	......	......
11	1	4	2	1	1	2	......	......	......
31	1	7	3	4	8	3	3	2	......
46	1	10	7	12	10	6	......	......	......
27	2	8	4	4	8	1	......	......	......
20	3	3	7	4	2	1	......	......	......
25	4	7	3	2	3	2	2	2	......
54	8	12	8	4	6	9	5	2	......
56	8	19	7	5	4	4	5	4	......
76	5	31	9	9	7	9	3	3	......
166	48	55	26	18	10	3	3	1	2
25	4	9	6	3	2	1	......	......	......
23	1	10	4	2	3	2	1	......	......
15	3	7	4	......	......	1	......	......	......
58	11	23	9	7	3	2	1	2	......
330	204	69	27	13	8	5	......	2	2

SUMMARY OF THE UPFOLLOW OF 1912. AS DETERMINED FROM THE LAST VISIT.

	Interval Since Discharge.									
	Under 6 months.	6-12 months.	12-18 months.	18-24 months.	24-30 months.	30-36 months.	36-42 months.	Over 42 months.	Total.	Total for 6 months and over.
I. CASES ORIGINALLY ADMITTED AS INCIPIENT:										
a. Discharged with a favorable prognosis, ..	51	80	64	28	44	15	20	3	305	254
Found to be improved or stationary, ...	40	65	56	24	40	15	19	2	261	221
Per cent., ...	78	81	87	86	91	100	95	67	86	87
b. Discharged with an unfavorable prognosis,	7	7	6	2	5	1	3	1	32	25
Found to be improved or stationary, ...	1	7	2	2	4	1	3	1	21	20
Per cent., ...	14	100	33	100	80	100	100	100	66	80
II. CASES ORIGINALLY ADMITTED AS MODERATELY ADVANCED:										
a. Discharged with a favorable prognosis, ..	136	206	135	106	85	58	72	17	815	679
Found to be improved or stationary, ...	81	143	96	71	62	45	59	17	574	493
Per cent., ...	59	69	71	67	73	78	82	100	70	73
b. Discharged with an unfavorable prognosis,	88	30	28	8	9	7	3	3	176	88
Found to be improved or stationary, ...	17	8	11	3	3	6	1	2	51	34
Per cent., ...	19	27	39	37	33	86	33	67	29	39
III. CASES ORIGINALLY ADMITTED AS FAR ADVANCED:										
a. Discharged with a favorable prognosis, ..	146	170	113	66	53	35	49	9	641	495
Found to be improved or stationary, ...	50	58	48	33	31	21	36	7	284	234
Per cent., ...	34	34	42	50	58	60	73	78	44	47
b. Discharged with an unfavorable prognosis,	295	75	47	20	12	8	13	3	473	178
Found to be improved or stationary, ...	24	8	9	8	3	3	8	1	64	40
Per cent., ...	8	11	19	40	25	37	61	33	13	22

SUMMARY OF THE UPFOLLOW OF 1913. AS DETERMINED FROM THE LAST VISIT.

	Interval Since Discharge.									
	Under 6 months.	6-12 months.	12-18 months.	18-24 months.	24-30 months.	30-36 months.	36-42 months.	Over 42 months.	Total.	Total for 6 months and over.
I. CASES ORIGINALLY ADMITTED AS INCIPIENT:										
a. Discharged with a favorable prognosis, ..	32	99	42	42	38	56	18	2	329	297
Found to be improved or stationary, ...	26	79	31	36	30	47	16	2	267	241
Per cent., ...	81	80	74	86	79	84	89	100	81	81
b. Discharged with an unfavorable prognosis,	2	9	1	3	3	3	3	1	25	23
Found to be improved or stationary, ...	0	4	1	0	2	3	3	1	14	14
Per cent., ...	0	44	100	0	67	100	100	100	56	61
II. CASES ORIGINALLY ADMITTED AS MODERATELY ADVANCED:										
a. Discharged with a favorable prognosis, ..	75	208	106	83	101	69	46	22	*711	635
Found to be improved or stationary, ...	46	137	65	52	73	62	37	18	490	440
Per cent., ...	61	66	61	63	72	90	80	82	*69	69
b. Discharged with an unfavorable prognosis.	38	47	21	16	8	3	3	0	*137	98
Found to be improved or stationary, ...	3	14	7	6	5	2	3	0	40	37
Per cent., ...	8	30	33	37	62	67	100	0	*29	38
III. CASES ORIGINALLY ADMITTED AS FAR ADVANCED:										
a. Discharged with a favorable prognosis, ..	76	146	71	60	55	36	19	12	*477	399
Found to be improved or stationary, ...	18	49	25	25	28	22	13	8	188	170
Per cent., ...	24	34	35	42	51	61	68	67	*39	43
b. Discharged with an unfavorable prognosis,	219	109	44	22	14	10	2	4	*426	205
Found to be improved or stationary, ...	4	17	8	2	3	3	1	0	38	34
Per cent., ...	2	16	18	9	21	30	50	0	*9	17

*The dead with "no data" are included.

Form 414.

COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF HEALTH.

Report—Condition of Ex-Patient.

Dispensary No..................... *Date*............................*191*

Name ....*Age* ....*M. F.* *Wh. Blk.* *S. M. W. Div. Sep.*

Address .... *St*.. ....*Town* ....*County.*

Patient at Pennsylvania State Sanatorium at..

Admitted ....*191*......*No. of Admissions*.................*Classification* ....

Discharged ....*191*......*Result* ....*Reason* ....

Now Dispensary Patient, Yes: No. Classification ....*Regular Attendant, Yes: No.*

Occupation prior to onset of illness ....*Present Occupation* ....

Indicate condition by (X). Leave other spaces blank.

	Yes	No	More	Less	Same	Remarks.
Cough						
Expectoration						
Short of Breath						
Blood in Sputum						
Appetite Good						
Indigestion						
Diarrhoea						
Hoarseness						
Pain on Swallowing						
Night Sweats						

Weight: On discharge—————— Present——————lbs.

Temperature ——————————at——————P. M.

Pulse ——————————at——————P. M.

Respiration ——————————at——————P. M.

Frequent fever——————————

	Before Illness.	Present.
Hours able to work		
Hours work indoors		
Place employment dusty		
Average monthly earnings		
Self supporting		
Family income per month		
Number to be supported		
Habits, tobacco: None, Mod. Exe.		
Habits, alcohol: None, Mod. Exe.		
Hours in bed: Night		
Hours in bed: Day		
Separate bed		
Separate room		
No. windows in bedroom open		
No. windows in bedroom closed		
Hours in open air daily		

Since discharge:

Hemorrhages, Yes: No; Number——

Frequency—— Amounts——

Illness

Tuberculin treatment at San., Yes: No: How long

Tuberculin treatment in Disp., Yes: No: How long

Remarks:

Signed, Nurse.

House or room clean, Yes: No. Overcrowded, Yes: No.

Observance of instruction as to mode of life, etc.

Tuberculosis in immediate family:

RELATIVE	Age	Same or other Dwelling	Developed before or since Disch. fr. San.

Remarks: (Note especially patient's general condition as it appears to you.)

Signed. Physician in charge.

REPORT CONDITION OF EX-PATIENT.

Sanatorium Case No........................

Name, ...

Date of Report ....191...... After discharge .... Years............... Months............... Days.

Condition: Satisfactory: Retrogressive..

(Leave above space blank for use at Sanatorium.)

Physicians in charge of Dispensary will please instruct Dispensary Nurse to inspect ex-sanatorium patients in March and September of each year.

Reports should be forwarded not later than April 15 and October 15.

Send reports to Medical Director of Sanatorium of which the patient was an inmate.

A copy of each report should be kept on file in the Dispensary.

Please review each report carefully before mailing, and see that all questions are clearly answered.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.		Subject.
1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progess, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1 Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Oppohtunities of the Country Doctor.
21.	March,	1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bathtubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 63. HARRISBURG, PA. November, 1914.

EFFECTIVE RURAL SANITATION. END-RESULTS.

The problems of rural sanitation in a great Commonwealth like Pennsylvania with sanitary relations between cities and boroughs on the one hand, and the broad country side on the other, ramify every industry in the Commonwealth. The primary responsibility for sanitary administration in the cities and boroughs rests with the local authorities. The approval of all larger sanitary problems, such as the installation of water works and sewage works, everywhere is by the Commissioner of Health, and in addition to these duties, the entire supervision of sanitary matters in second class townships of the State comes directly under him.

This discussion will deal chiefly with sanitation in the rural districts, *per se,* and with sanitation in municipalities as applied to the municipalities and the country side.

In the beginning let it be said that prior to 1905 no systematic supervision even of water works or sewage works had been undertaken by the State, no sanitary supervision whatever existed in hundreds of municipalities, and absolutely no supervision existed in the rural districts. With the organization of the State Department of Health in 1905 there was suddenly thrust upon it the tremendous task of direct, personal supervision of all public health work over an area, boroughs and cities not included, of practically forty-five thousand square miles of country, and the enforcement of laws providing for the protection of the streams of the Commonwealth from pollution, which involves of course a certain supervision of the entire Commonwealth.

The Problems of Rural Sanitation may be considered under several headings; first, the supervision of quarantinable disease and the protection of the public from the virus of such diseases, that is, from the immediate contact with individuals while still in a contagious state; second, the protection of the individual from menaces to health other than those bearing contagion; third, the protection of the public water supplies; and fourth, the collection of vital statistics.

For a long while it was considered to be the chief duty of health authorities to establish quarantine regulations for a few diseases recognized as highly contagious. To-day a great health department administers quarantine only as an incident in real public health work, and quarantine regulations enforced as they are constitute a large element in the real educational campaign of making citizens of the Commonwealth see that it is their duty to live up to the Golden Rule, "Whatsoever ye would that men should do to you do ye even so to them," or to put the thought in another way, to do unto others and their children while probably bearing contagion as they would that their neighbors should do when they or their children are similarly affected.

The plan of the modern health department, then, is to restrict the movement of persons suffering with communicable or contagious diseases to the dwelling in which they reside and if possible to limit them to a particular part of the dwelling, to isolate them in a sick chamber or a few rooms. In this way it seeks to obtain two objects: First, with the domestic side of the quarantine regulation, isolation in the sick chamber, to protect other members of the household, and secondly, by limiting the infected person to the dwelling, to protect neighbors and friends.

Originally quarantine meant great hardship to families. When, however, quarantine is carried out on a scientific basis and with cooperation of all the members and the physician the family in protecting itself and the public need not be excessively inconvenienced. For most diseases it is with safety possible to allow the wage earner to pursue his occupation, provided he remain out of the sick room and away from contact with the nurse. The plan of modern quarantine is to disturb normal conditions as little as may be necessary and to conserve the earning capacity of workers and guard them from financial losses while securing maximum protection.

During the years that the Department of Health has been actively engaged in this work much has been accomplished in teaching our rural citizens the ABC of preventive medicine and today probably better quarantine regulation is being obtained in the rural districts of the Commonwealth than in most of her incorporated municipalities. It is only necessary to make the average citizen see and feel that what health authorities insist upon is intended for the general good. A man restrained by quarantine must be made to see and feel that it is his duty to his family and to his neighbors to submit to this slight inconvenience and he must also be made to feel that it is the duty of his neighbor likewise to submit to certain inconveniences in order that the families of other citizens may be protected.

Quarantine nowadays is successful directly in proportion to the appreciation of these principles by those coming under quarantine supervision. The essential teaching of quarantine matters involves many details of the care of the sick. Health authorities constantly endeavor to make the people understand why discharges from the mouth and nose of patients suffering with diphtheria, scarlet fever, and measles, for example, must be confined to narrow quarters, why these discharges must be destroyed by fire or by use of antiseptics, and why the room must be disinfected at the conclusion of such illness. They try to make all persons, at least all adults, realize that those discharges are heavily laden with virus of the disease and remain so, even long after the patient ceases to present the picture of illness, and just in proportion as the good housewife appreciates this element of danger which she cannot see will she be faithful in carrying out precautionary measures.

With other diseases, notably typhoid fever, the urine and stools are constant sources of danger, not only to the members of the household and the nurse but also to those not residing in the household, and we must try to impress upon every one the absolute necessity of destroying the contagious elements by means of disinfectants, chloride of lime or some similar antiseptic, and further that these excreta must be disposed of in such a way that they cannot possibly become sources of further danger. The housewife who is made to appreciate that flies feeding upon the stools or urine of typhoid patients may infect others of her family, neighbors, or visitors, is usually faithful in disposing of such excreta in a way that will render it impossible for flies to get at them. The citizen who appreciates that such discharges entering domestic water supplies or public streams supplying towns or cities may harm those who use such supplies almost invariably seeks to protect such water supply or stream from pollution. These lessons must be carried home with every opportunity to appeal to the public.

In supervising cases of tuberculosis of the lungs it is important constantly to impress upon every one that the element of danger is found in the sputum and to teach him to collect such sputum in a way that it may be destroyed by fire. He should be made to understand that the room in which the tuberculous individual resides needs to be disinfected from time to time so that any germs sprayed upon the walls, floors, or furniture when the patient coughs in his sleep may be destroyed by formaldehyde gas.

To educate seven millions of people to a full appreciation of these diseases is no mean task, and it is only by co-operation with every organization in a position to carry home individually and collectively the elementary truths of sanitation that we can hope to reach all citizens in the Commonwealth.

The farmer, who has had a privy constructed so that it may overhang a stream, or who has such a building in dangerous proximity to his own well or spring, is not always the first to see the point of danger. We sometimes meet with the statement that this water has been used by parent and grandparent with safety, that for generations it has been considered the best water in the community, and hence it must be absolutely pure; and yet, with a little intelligent teaching about soil pollution he is made to appreciate that there is a limit to what the ground may absorb; he grasps the possibility of seams through the soil or through the rock; he comes to appreciate the necessity that the stream should be used by municipalities for a public water supply; his responsibility to the great human family dawns upon him and he fully grasps the broad meaning of the Golden Rule.

We cannot hope to go far beyond the intelligence of the average man in enforcing sanitary laws; on the other hand, we must constantly seek to have the need of enforcement appreciated before attempting enforcement; or at most we can only hope to go a little way beyond that appreciation in the enforcement of law. It is only when the rural citizen appreciates that what is now a menace to health may not have been so serious a menace when towns or cities were not common and when neighbors were not huddled so closely together, that he is willing to co-operate in removing his outbuildings from dangerous proximity to streams and public water supplies. It is only when the farmer acquires a broad grasp of his citizenship that he appreciates why he should no longer continue to let his barnyard drain into a stream or brook that must of necessity supply his butcher, grocer, and baker in the town a few miles below. It is sanitary education that prompts him cheerfully to obey the law and to cease doing anything that may be a menace to his remote neighbor.

In all the sanitary work of the Department our constant aim is to secure co-operation by helping the citizen who is required to cease doing something which he has long been accustomed to do, to see the real reason for it. We try to show him this, and whatever degree of success we may have had in abating nuisances to health has been due quite as much to this teaching of the true meaning of a sanitary law as to the enforcement of any such law. Great as are the police powers of a Department of Health, little could be done without preceding it by education.

When the Legislature of the Commonwealth placed upon the Department the duty of protecting the streams from pollution it was believed by many that this authority was delegated too late to accomplish any great amount of good. As municipalities multiplied throughout the Commonwealth, and as one huge industry after another developed the public had almost come to believe that the rivers and smaller streams were the natural drains for every sort of filth. It is true that many citizens appreciated that this defilement of all great sources of water supply was a tremendous evil resulting in an enormous loss of life; it is true that the medical profession and students of health everywhere appreciated that Pennsylvania was a typhoid ridden state, but even in the face of such tremendous difficulties the General Assembly of 1905 looked ahead not to what might be accomplished in a few years, but to what might be accomplished for the Pennsylvania citizens of some years in the future, and enacted a law to enable the Department of Health to preserve the purity of the waters of the State for the protection of the public health.

It has been a part of the plan of the Department during the years that have intervened since the adoption of that law to lead the average citizen to feel that it is his duty on his individual estate to protect every stream and rivulet from any menace that may be prejudicial to health, and whilst we have succeeded far beyond our expectation in protecting many of the small streams, brooks, and rivulets, and by securing the co-operation have protected many wells and springs and sources of domestic supply, we also have succeeded in arousing the general public to some degree of appreciation of methods of protecting the streams of the Commonwealth from pollution with sewage and industrial waste.

The manufacturer who has been hard pressed to get a supply of water from a stream sufficiently pure for his interests is beginning to recognize the desirability of protecting the stream for some other manufacturer who may desire to use its waters at a lower point. The municipality that finds it necessary to take a surface water supply from a creek or river is beginning to understand that it must not pollute that stream or river from its own sewers because some other municipality some miles below must resort to this same stream for its drinking water.

The enforcement of the law for the protection of the waters of the State fixes the responsibility upon three State Officials, the Governor, the Attorney General, and the Commissioner of Health. So many varying physical conditions obtain in the great Commonwealth that it is difficult to establish general rules for this work and up to the present time it has been more practicable to work out a policy by water sheds and districts peculiar to the territory in hand. Without some such control ultimate ruin so far as water supplies are concerned would be the inheritance of succeeding generations. Had foresight been taken fifty years ago in protecting the public water supply probably a hundred million dollars could have been saved to the citizens of the Commonwealth. It is the policy of the Department at the present time to undo as much as possible of the damage already wrought with due regard to the limits of the constitution, the laws of taxation, and the so-called semi-prescriptive rights established by custom and the sentiments of the people.

Where positive menaces exist they must be removed and where menaces demand abatement this must be required without unreasonable delay. The general policy adopted for the larger problems that we meet, and as is contemplated by the law, is to compel the adoption by public and private corporations of comprehensive plans for the disposal of sewage and the construction of water works and to prevent the extravagances which result from the construction of sewerage systems built without any comprehensive plan in mind.

At the present time, nearly every town in the State where sewage systems are being extended has adopted a comprehensive system for building, the purpose being to build all extensions in conformity with the original plan, the ultimate consummation of which will include sewerage work to purify sewage and make it possible to discharge the resulting effluent into the stream without its becoming a menace to health.

Only a short while ago the following incident came to our notice in the suburbs of a small town. A private sewer was built to discharge into a stream just at the margin of the borough, running through a farmer's meadow. A ram had been installed to supply this man's premises with water from the stream. A case of typhoid fever developed in one of the houses unlawfully discharging waste through this private sewer into the stream, polluting the water used by the farmer in cleasing his milk utensils. The farmer, in turn, sold to the citizens of the town the milk thus polluted resulting in an epidemic of typhoid fever along the milk route and the polluted milk also led to the infection of the farmer's own family with typhoid.

Municipalities sometimes fail to appreciate this policy of the State in protecting streams. This little town, I am sure, with the costly epidemic of typhoid fever and the loss of life all of which might have been prevented and all of which was directly due to municipal misdirection and carelessness, has learned its lesson dearly.

State-wide control of these matters is essential. No public nor private corporation nor individual, whether he resides in a municipality or in the countryside, possesses the right to defile a stream of water with sewage prejudicial to public health, and thus damage riparian rights below. Towns are not separate and apart from the balance of the State nor are they all-sufficient in themselves. Their powers are derived from the State through special creation of authority by the Legislature. The State alone is sovereign. The Department of Health is an important agency in the preservation of the purity of the waters of the State, and the decisions of the

Governor, Attorney General, and Commissioner under the law are for the purpose of directing other agencies, municipal authorities, rural citizens, or others in carrying out changes and improvements necessary to protect public health. When this feature of the situation is once thoroughly grasped by citizens in municipalities and rural districts the only difficulty to confront us will be the working out of ways and means to bring about purification and future protection of the streams.

Since the Department has been established stream inspectors under the direction of the Commissioner have examined upward of 700,000 properties and about 120,000 separate pollutions believed to be detrimental to health, have been abated. In the protection of municipal water supplies filtration plants have been installed so that at the present time nearly four millions of the population, forty-five per cent. of the State's entire population, receive filtered water. Many sewerage works have been installed and many others are in process of installation. The great work of abating pollutions and protecting water supplies has already more than paid itself in the reduction of sickness and the lessening of mortality in the State.

Proving the Account.

Every citizen of the Commonwealth has a right to know what has been accomplished by this campaign and judging by what has been accomplished may pass judgment upon the work of the present and may anticipate the work of the future. Those who framed the health laws of the Commonwealth adopted in 1905 had in mind that all sanitary work must evidently show results that could be proven statistically. They must have appreciated the fact that improvement in rural sanitation would show itself statistically in the death rates and the rates of sickness in the rural districts, and that it might appear in even a more striking way in the towns and cities. This is exactly what has happened. On many occasions when a case of communicable disease has been cared for and further spread been prevented in the rural households by isolation and quarantine and a proper care of excreta, a number of cases have been saved in towns and municipalities by protecting the food supplies going direct from these premises into towns, and by protecting water supplies from infection and pollution such as formerly gained access to the streams of the Commonwealth.

In order that the preventive work regarding public health may be properly studied and exact results shown, we have a Department of Vital Statistics and from its collection of data we have figures to check up all such work. It is extremely interesting at this time to view the eight years of work from a statistical standpoint in order to show which way we are heading and what we accomplish.

In 1906, the first year for which our statistics were compiled, in the entire Commonwealth 114,435 citizens died. The death rate has shown a constant tendency to decline since 1906 so that last year, notwithstanding the tremendous increase in population, nearly one million, but 117,995 died, and the death rate during this time has been reduced from 16 in a thousand to a rate of 14.5 in a thousand. In other words, had the death rate continued as high during the year 1913 as in 1906, nearly 12,000 additional persons would have died in the course of that year. For the year 1914 the saving of lives promises to be even greater. In 1906 the death rate from typhoid fever was 54.8 in a hundred thousand, while for the year 1913 the rate was 18.1 in a hundred thousand. This disease, perhaps more than any other is a true index of sanitary conditions in the Commonwealth. To have the death rate lessened from 54.8 to 18.1 in the hundred thousand means a reduction of sixty-seven per cent. in deaths from a single disease.

Enough lives have been saved from typhoid fever alone during the years of this period to repay the State a great deal more than dollar for dollar for every cent of the money expended by the State Department of Health and by every municipal Board of Health in the Commonwealth and leave an enormous balance besides.

Not only does this result of rural sanitation appear in typhoid fever, but similar results not so striking, however, have followed in nearly all the preventable diseases. In diphtheria, for instance, the death rate dropped from 34.1 to about 25.8 in the hundred thousand. In measles the death rate has been cut in half. In tuberculosis the disease has declined from 150.9 to 120.9, and a considerable lessening is noted in diarrhoeal diseases and in infant mortality.

Taking the deaths as a whole and calculating the rate of 1906 for each year succeeding and deducting from this total the actual number of deaths occurring, the result in seven years time is the saving of more than 60,000 lives and practically all of this saving may be attributed directly to a proper enforcement of sanitary laws and to public education in sanitary methods.

Much has already been accomplished in rural sanitation of direct value to rural districts and to municipalities, but much yet remains to be done.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progess, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1 Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Oppohtunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr. 1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective **Rural** Sanitation. **End Results.**

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 64. HARRISBURG, PA. December, 1914.

PENNSYLVANIA'S SYSTEM OF TUBERCULOUS DISPENSARIES.

Historical: Prior to the organization of the present Department of Health of the State of Pennsylvania, the only means of attacking the tuberculosis problem within the borders of the Commonwealth were furnished by private philanthropy. These agencies consisted of a few over-burdened and inadequate institutions, which, in addition to private subscriptions, received occasional State Aid. As a result of the growth of general knowledge in regard to tuberculosis, the demand for organized assistance for all patients of the State became greater each year. This was accentuated by the fact that, through the Bureau of Vital Statistics, organized as a part of the new Department, it was learned that over ten thousand deaths occurred annually from this disease, or 12.9 in every thousand of population.

Rural districts as well as urban communities were affected. This was due to the migration of many advanced cases from city to country in the vain hope of recovery, frequently with concealment of the diagnosis, and consequent infection of country houses; also to the habit of keeping the windows closed, a prevalent custom in agricultural sections. Physicians are, as a rule, less frequently consulted in the country than in the city so that disease is allowed to progress to a more advanced stage than in communities where doctors are more numerous.

The Commissioner of Health believed that the tuberculosis situation in Pennsylvania was remediable, if not preventable, and that the adequate solution of such a problem could only be obtained through a systematic, thoroughly organized plan. There is such a thing as the self-respect of a Commonwealth, as well as of an individual, hence the State should not be dependent upon gifts from private sources for the establishment and control of agencies designed to conserve its health. Further, an officially authorized, central body, acting everywhere with impartial force, is more productive of general good than voluntary organizations, because it is directly responsible to the people, by whom it is supported.

The scheme provided for a system of Dispensaries throughout the State for the examination and control of its indigent consumptives, with Sanatoria for their treatment. The plan became an Act of Assembly on the 14th day of May, 1907. Six weeks later, the first dispensary was opened. Others rapidly followed, placed in centres of population, where they were most urgently needed and most accessible, until eventually every county had at least one such outpost for the protection of its people. In the cities, suitable houses were leased for dispensary purposes; suites of rooms were occupied in towns, and in rural sections dispensaries were located in the offices of the physicians in charge. Co-incident with this movement, the system of Sanatoria was inaugurated, beginning with Mont Alto Sanatorium, in the South Mountain district of the south central section of Pennsylvania. The relation between Dispensary and Sanatorium has been very close from the beginning.

The Programme of the Dispensary consists in having each applicant sign a statement of his inability to pay for medical attention; in having him furnish a complete family and personal history; and in subjecting him to a thorough physical examination. Following this, if the diagnosis is positive, the physician advises the patient according to his needs, explaining the nature of his illness and emphasizing the importance of Sanatorium care. He instructs him in the measures necessary for the protection of his family and others with whom he comes in contact. The application of these principles is demonstrated by the nurse, who is required to visit the patient's home within one week of his call at the dispensary. The patient is provided with paper napkins and sputum cups and is urged to sign an application for Sanatorium treatment without further delay. When he is sent to the sanatorium and his house is fumigated, the source of home infection is removed and the family is given an opportunity for self-support, without the handicap of chronic illness. Upon the patient's discharge from the sanatorium, he is advised to report to the dispensary through which he was admitted. At the same time the dispensary is notified and failure to report results in a visit by the nurse. The dispensary thus serves as a "feeder" to the sanatorium and a place where the consumptive may learn the fundamental principles of treatment and prophylaxsis, which he will find enforced at the latter institution; also as a "post graduate" or "continuation school" upon his return. One of its most important functions is the supervision of the patient who is undergoing gradual re-adjustment to natural conditions of life. He must be guarded against dissipating his recently acquired energy, either in work or pleasure, and he should receive assistance in removing the harmful influences from his environment, to which previously he had been indifferent. The dispensary furnishes material aid in the form of milk and oil to those who are unable to obtain the supplemental food prescribed as an important part of the treatment. The issue of such supplies is carefully supervised and is suspended upon infraction of the regulations. The use of drugs is restricted to the conditions which interfere with the essentials of treatment, such as loss of sleep or appetite. Specific therapy, in the form of "Dixon's Fluid"* is used with pronounced success.

The Physician in Charge: The physicians who were put in charge of dispensaries were chosen for their knowledge of the economic conditions of their communities and their influence in obtaining civic improvements, as well as for their reputation as scientific practitioners of medicine. The dispensary chief must be a man of strong but pleasing personality and an expert in psychology and sociology, as well as in diagnosis and therapy. To achieve success, he should develop the faculty of individualizing in each case, which requires infinite patience, real sympathy and constant enthusiasm. As a servant to the community, the physician acts as a resourceful adviser to the public and a willing consultant to his neighboring practitioners, but must, at all times, preserve the integrity of his professional bearing and, in addition, must guard the dispensary against abuse.

The Dispensary Nurse: Nurses were selected with regard to their fitness as experts in social service, as well as for their qualifications in hospital training. The nurse assists the doctor in the dispensary, but her chief function is the supervision of the patient in his home. Housing conditions may be improved, but, if the occupants are left in a state of ignorance, the sanitation of the home will never be satisfactory. The nurse gains an intimate knowledge of the needs of each family, and, by a study of the resources of her community, in the form of benevolent associations, is instrumental in alleviating much distress. In addition to providing for the instruction and care of the patient in his home, it is her duty to "round-up" all the other members of the household for examination by the dispensary physician. The majority of incipient cases enrolled are discovered in this way, especially among the children. By gaining the confidence and respect of those in her charge, the dispensary nurse is enabled to enter into their lives in such a way that she can interpret their problems to the physician, with the completeness necessary for their successful solution. In the early days of the campaign, the nurse's labors were mainly educational in a theoretical way, but it soon became apparent that practical work was indispensable. This has included the actual demonstration of house-cleaning and the re-arrangement of interiors, lessons in the selection and preparation of food, and the care of infants. Nurses have acted in the capacity of employment agencies to patients who required change of occupation, or to members of their families who were in need of work. They have also been obliged to learn certain details of the real estate business, in order to effect the transplantation of families from unhygienic to healthy localities.

---

*Medical News, Jan. 17, 1891.

"Follow-up" Reports: A most important feature of the nurse's work is her attention to the "follow-up reports" of all discharged dispensary and sanatorium cases. A report is required in each instance, at intervals of six months, for a period of two years after the patient's discharge. A blank form is furnished for recording the patient's physical and social condition, the character of his habits, and the degree of his observance of sanitary regulations. The results thus obtained have been very encouraging. The educational value of dispensary and sanatorium experience has been generally apparent, indicated by noticeable reform in personal hygiene and home conditions and the development of an intelligent comprehension of the sanitary needs of places of employment. Follow-up visits have also been the means of stimulating persons who were inclined to be indifferent to their condition and careless about the safety of others.

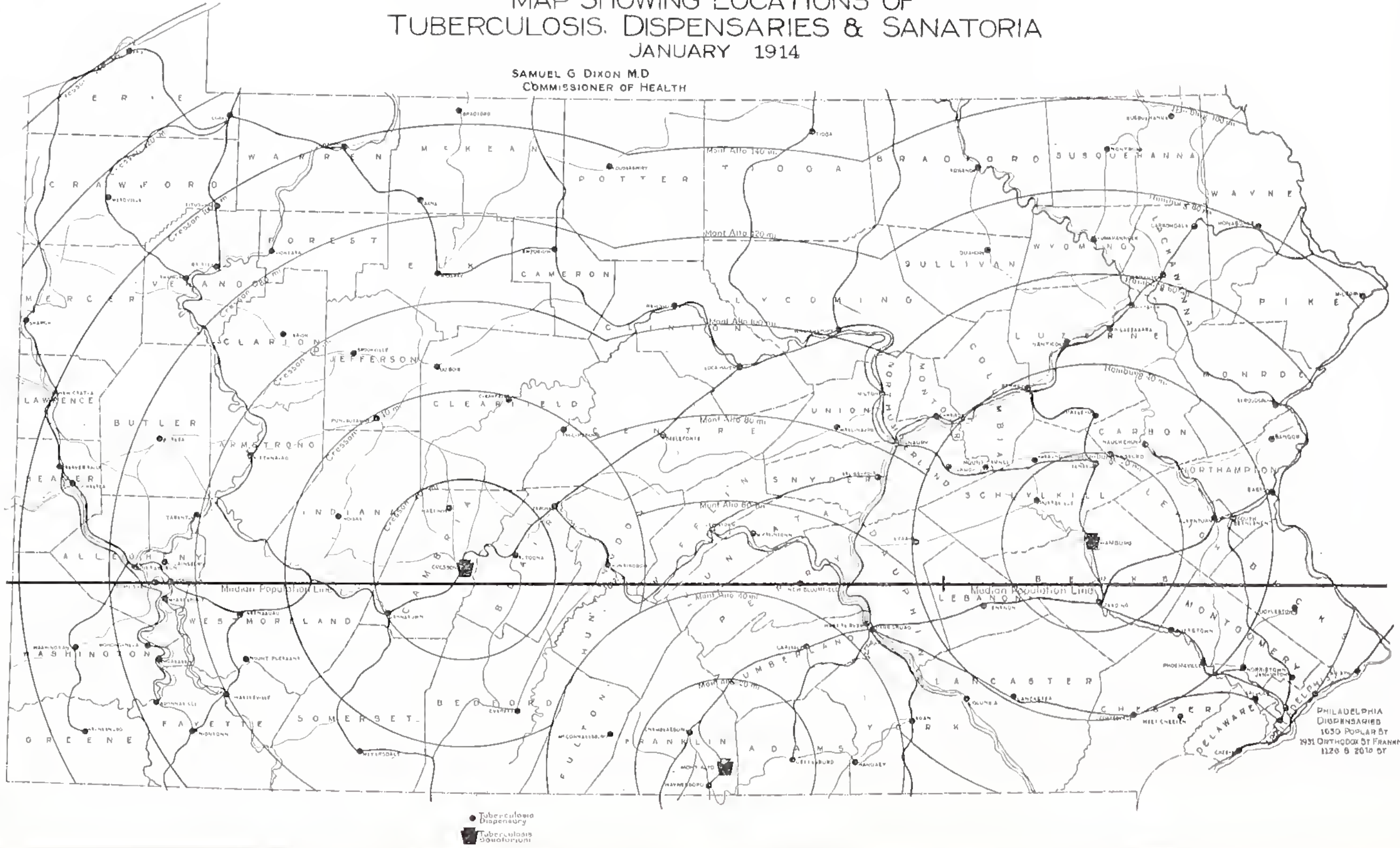
At the present time there are 118 dispensaries in Pennsylvania, with 194 physicians and 121 nurses, having an enrollment of 10,132 patients. The distribution of the Dispensaries through the State is shown by the map, and certain details appear in list which follows.

Results: From July 1st, 1907, until December 31st, 1914, 75,640 patients were admitted to the Dispensaries; 14,489 of these were transferred to the Sanatoria; 2,181 were referred to private physicians, and 4,781 have been discharged with the disease "Arrested" or "Cured." During this time 813,789 visits were made by nurses; 6,903,000 quarts of milk were served, and 121,786 patients have been given oil, while the biological products of the tubercle bacillus were administered to 7,036.

Since the inauguration of Pennsylvania's official campaign against tuberculosis, the death rate from the pulmonary form of the disease has fallen from 13.0 to 9.9 in each thousand of population, which means the saving of about 12,000 lives.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
DIVISION OF TUBERCULOSIS DISPENSARIES
MAP SHOWING LOCATIONS OF TUBERCULOSIS DISPENSARIES & SANATORIA
JANUARY 1914

SAMUEL G DIXON M.D
COMMISSIONER OF HEALTH



DIRECTORY, TUBERCULOSIS DISPENSARIES.

County.	Town.	Address.	Days and Hours.
Adams,	Gettysburg,	No. 135 Baltimore St.,	Tues., 2-4.
Allegheny,	Braddock,	812 Braddock Ave.,	Mon., Fri., 2-4.
	Homestead,	318 8th Ave.,	Wed., 2-4.
	McKeesport,	8th and Market Sts.,	Tues., Fri., 2-4.
	Pittsburgh,	12 Tunnell St.,	Daily, 3-5.
	Tarentum,	National Bank Bldg.,	Tues., Thurs., 2-5.
	Wilkinsburg,	1001 Penn Ave.,	Mon., Thurs., 2-4.
Armstrong,	Kittanning,	106 McKean St.,	Mon., Fri., 2-4.
Beaver,	Beaver Falls,	1621 7th Ave.,	Mon., Thurs., 2-3.
	Rochester,	361 Brighton Ave.,	Tues., Sat., 3-4.
Bedford,	Everett,	Main and Spring Sts.,	Fri., 1-3.
Berks,	Hamburg,	Hamburg Sanitorium,	Daily, 11-12.
	Reading,	537 Buttonwood St.,	Wed. & Fri., 2-4.
Blair,	Altoona,	1212 12th St.,	Mon., Thurs., 2-4.
	Tyrone,	1040 Logan St.,	Wed., 2.30-3.30.
Bradford,	Towanda,	Office of Dr. T. B. Johnson,	Thurs., 1-3.
Bucks,	Bristol,	Mill and Cedar Sts.,	Tues., 11-12.
	Doylestown,	114 N. Main St.,	Tues., 2-4.
Butler,	Butler,	129 E. Diamond St.,	Tues., Fri., 10-12, 1-4.30.
Cambria,	Cresson,	Cresson Sanatorium,	Daily, 11-1.
	Hastings,	4th Ave., between Beaver and Spangler.	Wed., 10-12.
	Johnstown,	440 Lincoln St.,	Tues., Fri., 2-4.
Cameron,	Emporium,	Office of Dr. H. S. Falk,	Fri., 7-8.
Carbon,	Lansford,	Tunnell St.,	Mon., Wed., 3-5.
	Mauch Chunk,	National Bank Bldg.,	Tues., 11-12.
Centre,	Bellefonte,	25 W. High St.,	Tues., 10.30-11.30.
	Philipsburg,	Potter Arcade,	Tues., Thurs., 2-3.
Chester,	Coatesville,	Main St., near P. & R. R. R.	Tues., 2-4.
	Phoenixville,	215½ Church St.,	Thurs., 2.30-4.30 & Mon. 2.30-3.30 & 8-9 P. M.
	West Chester,	122 Market St.,	Wed., Fri., 2-3.
Clarion,	Clarion,	Main St. and 5th Ave.,	Tues., 1-2.
Clearfield,	Clearfield,	302 Market St.,	Thurs., 10.30-12.30.
	DuBois,	2 S. Main St.,	Mon., Wed., 2-4.
Clinton,	Lock Haven,	E. Water St.,	Thurs., 2-3.
	Renovo,	7th St., near Erie Ave.,	Tues., 2-3.
Columbia,	Berwick,	186 W. 2nd St.,	Thurs., Fri., 8-12.
Crawford,	Meadville,	271 Arch St.,	Thurs., 3-4.
	Titusville,	Spruce Place,	Sat., 11-12.
Cumberland,	Carlisle,	51 E. High St.,	Tues., Fri., 12-2.
	West Fairview,	Office of Dr. H. B. Bashore,	Wed., 2-4.
Dauphin,	Harrisburg,	106 N. 2nd St.,	Daily, 1-4.
	Lykens,	252 Main St.,	Wed., 1-3.
Delaware,	Chester,	310 Edgemont Ave.,	Daily ex. Fri. & Sat., 2-4. Fri. Eve., 7-8.
Elk,	Ridgway,	325 Main St.,	Fri., 11-12, 3-4 P. M.
Erie,	Corry,	45 N. Center St.,	Fri., 1-2.
	Erie,	510 State St.,	Tues., Sat., 3-5.
Fayette,	Brownsville,	High and Bridge Sts.,	Tues., 10-11 A. M.
	Connellsville,	2nd National Bank Bldg.,	Wed., 9-12.
	Uniontown,	57 W. Main St.,	Tues., 12.30 P. M.
Forest,	Tionesta,	Office of Dr. F. J. Bovard,	Sat., 9-10.
Franklin,	Chambersburg,	Chbg. Trust Co. Bldg.,	Fri., 1-3.
	Waynesboro,	Main & Potomac Sts., Wayne Bldg.	Mon., Thurs, 1-3.
Fulton,	McConnellsburg,	Office of Dr. J. W. Mosser,	By appointment.
Greene,	Waynesburg,	Office of Dr. J. T. Iams,	Thurs., 1-3.
Huntingdon,	Huntingdon,	516 Penn St.,	Mon., Fri., 1.30-3.30.
Indiana,	Indiana,	724 Philadelphia St.,	Wed., 11-12.
Jefferson,	Brookville,	205 Main St.,	Fri., 3-4.
	Punxsutawney,	Walnut & Mulberry Sts.,	Mon., 11-12.
Juniata,	Mifflintown,	Main & Orange Sts.,	Tues., Fri., 2-4.
Lackawanna,	Carbondale,	35 N. Church St.,	Fri., 2-3.
	Scranton,	234 Adams Ave.,	Mon., Wed., Fri., 2-4.
Lancaster,	Columbia,	407 Locust St.,	Thurs., 3-5.
	Lancaster,	14 S. Prince St.,	Tues., Fri., 3-5 1st & 3rd Fri. 8.30-9.30 P. M.
Lawrence,	New Castle,	77 E. North St.,	Mon., Wed., Fri., 1-4.
Lebanon,	Lebanon,	110 N. 9th St.,	Wed., 9-12, Sat., 2-5.
Lehigh,	Allentown,	118 N. 5th St.,	Mon., Wed., Fri., 3-5.
Luzerne,	Hazleton,	17 S. Wyoming Ave.,	Tues., Wed., 1-3.30.
	Nanticoke,	156 E. Green St.,	Tues., Fri., 2-4.
	Pittston,	80 N. Main St.,	Mon., Thurs., 3-5.
	Wilkes-Barre,	184 S. Washington St.,	Daily, 3-5.
Lycoming,	Williamsport,	164 Pine St.,	Wed., Sat., 10-2.
McKean,	Bradford,	7 Main St.,	Fri., by appointment.
	Kane,	Eckel's Block, Fraley St.,	Wed., 2-3.
Mercer,	Sharon,	7 Dock St.,	Tues., Fri., 10-12.
Mifflin,	Lewistown,	49 W. Market St.,	Tues., Fri., 11-1.
Monroe,	Stroudsburg,	304 Main St.,	Fri., 2-3.
Montgomery,	Ardmore,	120 E. Lancaster Ave.,	Thurs., 1-2.
	Jenkintown,	Green Ave. & Leedom St.,	Fri., 1-2.
	Norristown,	415 Swede St. (Bean Bldg.),	Mon., Fri., 2.30-4.30.

DIRECTORY, TUBERCULOSIS DISPENSARIES—Continued.

County.	Town.	Address.	**Days and Hours.**
	Pottstown, ...	354 High St., ...	Thurs., 1-3.
Montour, ...	Danville, ...	110 Bloom St., ...	Tues., Fri., 2-4.
Northampton, ...	Bangor, ...	20 Market St.;	Mon., Thurs., 2-3.
	Easton, ...	222 Ferry St., ...	Mon., Fri., 3-5.
	S. Bethlehem, ...	126 W. Fourth St., ...	Tues., Thurs., 3-5.
Northumberland,	Milton, ...	1 Bound Ave., ...	Tues., Fri., 2-3.
	Mt. Carmel, ...	Syndicate Bldg., ...	Wed., Fri., Sat., 1-3.
	Shamokin, ...	543 Market St., ...	Tues., Fri., 10-12.
	Sunbury, ...	26 N. 4th St., ...	Mon., Thurs., 2-4.
Perry, ...	New Bloomfield, .	Off. of Dr. A. R. Johnstou,	2 P. M., by appointment.
Philadelphia, ...	Frankford, ...	1731 Orthodox St., ...	Daily, ex. Sat., 11-1.
	Philadelphia, ...	1630 Poplar St., ...	Daily, 11-1.
	Philadelphia, ...	1126 S. 26th St., ...	Daily, 11-1.
Pike, ...	Milford, ...	Office of Dr. W. B. Kenworthey.	By appointment.
Potter, ...	Coudersport, ...	Office of Dr. E. H. Ashcraft.	By appointment.
Schuylkill, ...	Pottsville, ...	121 Mahantonga St., ...	Tues., Thur., Fri., 2-4.
	Shenandoah, ...	Line & Jardin Sts., ...	Daily ex. Mon., 8-10 A. M.
	Tamaqua, ...	8 Hunter St., ...	Tues., 3-5.
Snyder, ...	Selinsgrove, ...	106 Market St., ...	Wed., 9-11.
Somerset, ...	Meyersdale, ...	Office of Dr. C. P. Large, ..	Wed., 2-4.
Sullivan, ...	Dushore, ...	Kline's Opera House, ...	Wed., 11-12.
Susquehanna, ...	Montrose, ...	Chestnut St., ...	By appointment.
	Susquehanna, ...	16 E. Main St., ...	Sat., 2-3.
Tioga, ...	Wellsboro, ...	Office of Dr. C. W. Webb, .	Thurs., 12-1.
Union, ...	Mifflinburg, ...	Office of Dr. C. H. Dimm ..	Tues., 12-1.
Venango, ...	Franklin, ...	1115 Elk St., ...	Wed., Thurs., 1-3.
	Oil City, ...	12 E. First St., ...	Mon., Fri., 12-2.
Warren, ...	Warren, ...	City Hall, ...	Thur., 5-6.
Washington, ...	Monongahela, ...	426 Main St., ...	Thurs., 2-4.
	Washington, ...	127 S. Main St., ...	Mon., Wed., Fri., 1-3.
Wayne, ...	Honesdale, ...	907 Main St., ...	Tues., 1-2.
Westmoreland, ...	Greensburg, ...	Coulter Bldg., ...	Tues., 2-5.
	Mt. Pleasant, ...	Braddock Bldg., ...	Fri., 3-4.
	Monessen, ...	Venneri Bldg., ...	Fri., Sat., 2-4.
Wyoming, ...	Tunkhannock, ...	Tioga and Bridge Sts., ...	Mon., 1-3.
York, ...	Hanover, ...	328 Franklin St., ...	Tues., Fri., 2-4.30.
	York, ...	25 N. Duke St., ...	Mon., Wed., Fri., 3-4.30. Tues. Eve., 7-8.30.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22	April, 1911,	Health.
23	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibilty to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.

⁂

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 65. HARRISBURG, PA. JANUARY, 1915.

PRESENT ORGANIZATION OF THE STATE DEPARTMENT OF HEALTH.

Pennsylvania recognized the necessity for the protection of the public health early in her history. A century ago a Board of Health was established and maintained in the city of Philadelphia, then the principal port of entry into the State, for the purpose of protecting internally its greatest centre of population and for the purpose of protecting the State generally from the introduction of contagious and infectious diseases. The progress of public health work, however, was very slow for a long while. In 1885, when the State Board of Health was created, there were fifteen local Boards of Health, all maintained in the larger cities of the Commonwealth. The Act of 1889 authorized the establishing of Boards of Health in third-class cities. In 1893 legislation provided for Boards of Health in boroughs. In the twenty-year period between 1885 and 1905, in pursuance of these laws and the efforts of the State Board of Health, several hundred Boards of Health were established in the municipalities.

During this period conditions throughout the State materially changed. Population was steadily increasing and modern conveniences and increased facilities for travel were bringing the people together and constantly intermingling the people of adjacent municipalities with each other. The streams were being more extensively used as sewers and at the same time as the necessary and only adequate water supply for the cities and towns. The local Board of Health having jurisdiction only within the limits of its own municipality could only afford internal protection. It had no power to protect itself from the outside territory surrounding it or from neighboring cities and towns. Rural communities were not under the jurisdiction of any health authority and had no adequate system of quarantine. In order to meet these conditions and afford the people of the Commonwealth a protection which they could not have through local organizations, the Legislature in 1905 created a State Department of Health, giving to it direct control of all the territory in the State not covered by the local authorities, imposing upon it the duty of protecting and purifying the waters of the State and giving it supervisory powers over all local health organizations.

Under the law a Commissioner of Health is appointed by the Governor, and an Advisory Board of six members. The Commissioner of Health is the executive officer of the Department and has direct charge of all its activities. He is also ex-officio a member of the Bureau of Medical Education and Licensure, of the State Dental Commission, of the State Water Commission and of the State Quarantine Board, thereby blending the work of these various bodies whose duties to some extent touch upon the public health with the work of the Department of Health. It is the duty of the Commissioner of Health to adopt and employ the most practical means for protecting the lives and health of the people of the State for which purpose he and his assistants and employees are given police power. He is also clothed with all the powers and duties formerly conferred upon the State Board of Health.

It is the duty of the Advisory Board to meet at the call of the Commissioner of Health and to advise the Commissioner on such matters as he may bring before it and to draw up reasonable orders and regulations for the prevention of disease, for the protection of life and health, and for the proper performance of the work of the Department of Health.

In order to meet the several requirements of the law and fulfill the duties imposed upon the Department, the Commissioner of Health has organized the Department in several divisions as follows:

First. The Division of Medical Inspection. Under this division an experienced physician is employed for each county of the State except Philadelphia County under the title of County Medical Inspector, and the rural districts, to wit, second-class townships just now 622 in number, are divided into districts, and a Health Officer is appointed for each district. The County Medical Inspector acts as the Department's consultant and has direct charge of the Health Officers in his county, makes investigations of unusual prevalence of disease, confirms doubtful diagnoses, examines suspected cases of disease where no physician is in attedance, and assists and advises local health authorities in the county whenever called upon. The Health Officer establishes quarantine and performs disinfection for all the contagious diseases in his district, thereby protecting the cities and towns from infection and possible epidemic from isolated cases in the rural districts on which they must rely largely for their milk supply and market products. He also makes minor investigations and sanitary inspections for the abatement of nuisances.

Medical and sanitary inspections of schools in districts of the fourth class, as provided for in the School Code, have been conducted under the Medical Division of the Department.

Second. The Division of Sanitary Engineering. It is the special duty of this division to protect the water supplies of the State, carrying out particularly the provisions of the Act of Assembly of 1905 for the protection of the purity of the waters of the State. The sanitary engineers and trained field inspectors of this division investigate the water supplies and the methods of sewage disposal in a municipality. Under the law plans for new water and sewer systems and for extensions of old systems must be submitted to the Commissioner of Health for approval. As our cities and towns are growing and extensions of old systems are constantly becoming a necessity, practically all of the municipalities are brought within the provisions of this law. Adequate filtration plants are required for the water supplies and the effluent from sewage is only permitted to flow into the streams after every possible precaution through treatment plants has been provided for its purification. Approximately half of the population of the State are now being furnished with filtered water. Fifty-three sewage disposal plants are in operation and many others planned or in course of construction. The field inspectors making systematic inspections upon the water sheds exclude from the streams surface pollutions from privies and barnyards in the rural districts above the intakes of municipal water supplies.

Third. The Division of Vital Statistics receives, records and tabulates reports of births, deaths, marriages and communicable diseases, provides our citizens with easy access to proof in matters relating to heredity, and through the morbidity statistics is able to point out to the Medical Division the unusual prevalence of communicable disease in any locality thus forming a basis for inspection by the County Medical Inspector or the general officers of the Medical Division. The State is divided into registration districts and each registration district is in charge of a local registrar under the State Registrar. Certificates of births and deaths must be delivered to the local registrar by physicians, midwives and undertakers. No burial can take place without a burial permit issued by the Bureau of Vital Statistics, in order to secure which the death certificate giving the cause of death, the name, age, place of residence, place of interment and other important data must be delivered to the local registrar and is by him forwarded to the Bureau of Vital Statistics for permanent record. Reports of births and marriages also contain complete information as to parentage, place of birth, nativity and other information which from generation to generation overlaps and will permit in the future accurate tracing of genealogy. The certificates of death, upon which burial permits are issued, aid materially in the enforcement of laws regulating the burial of bodies of persons who have died from contagious diseases. As the death certificate in each instance must give the cause of death and also any contributing disease in case of burial of persons dying from contagious diseases, the funeral services must be private and the burial must take place within thirty-six hours unless special permission be granted by the health authorities extending the time for sufficient cause.

Fourth. The Division for the Control of Tuberculosis conducts Dispensaries and Sanatoria. The greatest single cause of death in this State as well as in the United States and in the world at large has been tuberculosis. As the poor are and always have been special victims to this disease, proper care of the tuberculous poor was a requirement too great and too expensive for the local health authorities adequately to meet. Under the Department of Health one hundred and eighteen free dispensaries have been established in the cities and boroughs of the State and three Sanatoria—one in the central part of the State at Mont Alto, Franklin County, one in the western part at Cresson, Cambria County, and one in the east at Hamburg, Berks County. The Sanatoria have a combined bed capacity for approximately two thousand patients and the Dispensaries treat and care for about ten thousand annually. The patients are examined at the dispensaries and through the dispensaries make application for admission to the Sanatoria. One or more trained nurses are regularly employed at each dispensary. The nurses assist the physicians during dispensary hours in examining patients and recording their condition. At other times during the day they visit the homes of the patients making an initial visit when the patient first applies for treatment and inquiring as to their financial condition and ability or inability to provide medical treatment for themselves. Patients are only received whose financial circumstances are such that they are unable to afford proper treatment at their own expense. After the patients are enrolled the nurses make periodical visits to the homes for the purpose of seeing that the instructions given as to the home conditions are carried out. On such visits they instruct the housewives in better and more economical methods of cooking and housekeeping and especially in regard to the proper sleeping conditions, and do other general sociological work. The nurses also are constantly making inquiries as to whether there are other poor people in the neighborhoods which they visit who may be victims of the disease and endeavoring to induce such to come to the dispensaries for examination. Owing to the well known tendency of persons suffering from tuberculosis to combat the idea that they are sick until the disease is far advanced, educational work in this direction is of the greatest importance. It is difficult to get incipient cases to the dispensaries.

Fifth. The Division of the Distribution of Biological Products. Another communicable disease which in the past has proved fatal to so many of our people is diphtheria. The discovery of diphtheria antitoxin has made it possible to reduce the death rate from this disease from about forty per cent. before the use of antitoxin was known to less than ten per cent. for cases for which antitoxin has been used for curative purposes and the use of antitoxin as an immunizing agent has provided a means of checking the spread of the disease and reducing the morbidity therefrom. Diphtheria antitoxin, however, is an expensive remedy which in order to be effective sometimes requires repeated injections. While this great curative and preventive agent was open to the well-to-do, the poor could not afford to purchase it and anything like a general free distribution involved an expense too great for the local authorities to bear. Under the Division of Distribution of Biological Products 671 free distributing stations have been established where physicians may upon application secure diphtheria antitoxin free of charge for those who cannot afford to pay for it. This Division also in the same manner distributes tetanus antitoxin and when needed vaccine virus in localities where smallpox cases have appeared. Amongst the thousands of poor people who might not have been able to purchase diphtheria antitoxin to whom this great remedy has been furnished for curative purposes alone the Department has saved more than ten thousand young lives.

Sixth. The Division of Laboratories and Experimental Station aids in establishing diagnosis of disease, examines water supplies, sewage effluents, milk and milk products, prepares biological products of the tubercle bacillus used in the treatment of tuberculosis in the Sanatoria and Dispensaries, and makes special investigations in relation to causes of epidemics of disease including studies of typhoid and diphtheria carriers. As an aid in establishing diagnoses, it makes biological examinations of sputum, urine, feces, blood, spinal fluid and pathological fluids or discharges, particularly in relation to tuberculosis, diphtheria, Vincent's angina, meningitis, pneumonia, malarial fever and typhoid fever, studies blood sera by the Widal test for typhoid and other intestinal diseases and by the Wassermann and Noguchi tests for syphilis, studies morbid tissues for diagnosis of cancer and leprosy, and follows other studies for the detection of pathogenic or disease producing germs.

Seventh. The Division of Supplies keeps in store and distributes to various representatives of the Department supplies and materials necesary for the Department's work and also furnishes copies of our publications and sends models of our various forms to local Boards of Health.

Eighth. The Division of Accounting and Purchasing. This division is located in Philadelphia in order that it may have the advantage of the best markets of the State in making purchase of food and other supplies for the maintenance of the dispensaries and sanatoria. Careful records of all purchases made and all moneys expended by the Department out of State appropriations are made and preserved in this division.

Ninth. A Bureau of Housing is in process of organization as a division of the Department of Health and under the Commissioner of Health. This bureau will have jurisdiction over tenements and boarding and lodging houses.

All of the several divisions of the Department work in harmony under the direct supervision of the Commissioner of Health. The success of the work of each division depends largely upon the assistance and co-operation of the other divisions. All of the divisions under the Commissioner and his general staff are concerned in the administration of health laws in districts not under local boards whether they be rural districts or small municipalities that do not have an active and efficient Board of Health. The general work of the Department is directed to the protection not only of individuals from each other but also for affording protection to the municipalities from each other and from the surrounding country and in instructing and assisting local Boards of Health in every possible way in order that the administration of the health laws throughout the State may be uniform in all districts. By careful supervision of water supplies and the observation of quarantine regulations, the Department of Health with the co-operation of the local health authorities has succeeded in reducing the death rate from typhoid fever by seventy-six per cent. and the general death rate of the State has been reduced thirteen per cent.

In its educational work, in addition to monthly bulletins, short weekly talks published in practically all of the papers of the State and lectures upon public health topics frequently given by the Commissioner of Health or his representatives, the Department of Health also has a traveling tuberculosis exhibit which visits the various sections of the State giving free exhibitions and illustrated lectures. The Department is also prepared to assist local organizations in instituting baby saving shows, a number of which have already been given with marked success.

Since the organization of the Department in 1905 the several sessions of the Legislature have appropriated to this work over thirteen millions of dollars or appropriations for the last two years amounting to about $2,000,000 a year. Much the greater portion of these appropriations is expended by the Department of Health for the benefit of the poor who need it most, especially in its tuberculosis work and the distribution of antitoxin, but at the same time the Department endeavors to reach, safeguard and benefit all classes of people and in so doing the State's money is expended and redistributed to every section. While the appropriations to the Department of Health are liberal, it must be remembered that Pennsylvania is a growing Commonwealth with many large and constantly growing cities in population and that the unit of public health work in Pennsylvania is the State itself.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibilty to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.

PENNSYLVANIA
Health Bulletin

No. 66. HARRISBURG, PA. FEBRUARY, 1915.

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

NOTES ON TYPHOID FEVER IN PENNSYLVANIA FOR THE PAST NINE YEARS.

The Commonwealth of Pennsylvania had no adequate regulations concerning the gathering and registration of vital statistics until the year 1905. The General Assembly of that year established a Bureau of Vital Statistics to be maintained as a part of the Department of Health then created. It was made a duty of the Commissioner of Health "to have general supervision of the State registration of births, marriages, deaths, and diseases." The law creating the Department of Health was approved by Governor Pennypacker and was signed by him on the twenty-seventh day of April, 1905. The Department was actually established by the appointment of a commissioner, whose commission bore the date of the sixth of June in that year.

The organization of the new Department was at once undertaken and was carried on as fast as circumstances would permit. At the very beginning serious epidemics demanded attention and severely taxed our resources. To bridge the gap until the machinery for the reporting of communicable diseases could be provided, a Clipping Bureau was organized that the Department might be informed through the newspapers of the epidemics occurring in the State. Despite various hindrances, the development of a system of registration went on and local registrars were selected and appointed to facilitate compliance with the law regarding the registration of vital statistics. So thoroughly was this work done, that in a few months the Bureau of Vital Statistics was in active operation. It thus became possible to register such statistical data with reasonable accuracy, certainly far more completely than had ever before been possible in Pennsylvania. As a matter of convenience we began the systematic utilization of our statistical material on the first of January and the year of 1906 is the first year of our records of this kind. A measure of our success in this undertaking, so far as the registration of deaths is concerned, is found in the fact that in July, 1906, the Director of the United States Census formally included Pennsylvania in the "registration area" of the Census Office. This was done after the Chief Statistician had made a careful inspection of the Division of Vital Statistics and had satisfied himself that the records of the entire year 1906 might be accepted.

Coming now to the question of typhoid fever in Pennsylvania, with which we are here more directly concerned, it must be borne in mind that the Department of Health not only gathers statistics concerning the presence of this disease and the deaths caused by it, but also undertakes to control the occurrence and spread of this disease in certain parts of the State.

The statistical information as it comes in has a special value to the Department in showing the prevalence of typhoid fever in the districts covered by the reports. At short intervals the figures are carefully gone over, not only according to registration districts, but also according to communities which may belong to several districts and therefore show an unusual amount of disease although not so conspicuously present in any single registration district. Information also comes in from other sources; physicians and private citizens write to us, and even casual reports in the newspapers of the State are always carefully considered. In each county, except Philadelphia, the Department has an official representative, known as the County Medical Inspector, and a number of subordinate officers, known as Health Officers. It is the duty of all these persons to watch over the sanitary conditions of the sections in which they serve and particularly to make a prompt report of the presence of communicable diseases the instant any unusual number of cases becomes known to them. In this obligation typhoid fever is included.

The active relation of the Department of Health to the existence of typhoid fever is twofold. In the first place, it has the general duty to safeguard the citizens of Pennsylvania against this disease by protection of the water supplies and by such control of the sewerage and sewage disposal systems as shall prevent pollution of the potable waters of the State or minimize such pollution until complete control becomes possible. This active supervision extends to all sections of the Commonwealth and includes both urban and rural populations.

The other relation of the Department to this disease deals with the individual outbreak, whether this cover a few cases or extend so as to constitute an epidemic. In this field of its endeavor the Department is in a measure limited by the fact that it acts as a general board of health only for the strictly rural districts or the territory lying outside the municipalities. The municipalities are required by law to maintain their own Boards of Health, and the control of typhoid fever and other communicable disease is in the first instance the duty of such local boards. In this sense the County Medical Inspectors and the Health Officers of the Department function primarily only in the rural sections of their counties, outside of the cities and the boroughs. In case, however, any municipality does not establish a Board of Health or if any such board fail to exercise suitable care in checking an epidemic or neglect proper supervision of the santitation of its territory, it becomes the duty of the State Department of Health to take such steps as seem to be necessary to protect the health of the municipality, and the Department upon occasion may even take entire and absolute control of the sanitary situation. Such power to supersede the function of the municipality or its officers is exercised with extreme caution and only rarely, but an intervention of this kind is now and then necessary. Ordinarily in the case of an outbreak of disease in a municipality it suffices to inspect and advise in order to set in motion the medical machinery needed to put an end to the prevailing trouble with the least possible damage to the community.

The method of the Department in dealing with outbreaks of typhoid fever varies according to the circumstances of the particular event. When a case becomes known to a County Medical Inspector he makes inquiry as to the cause and satisfies himself that proper precautions are taken to protect the community and if he find that insanitary conditions prevail he endeavors to have them corrected. Particularly is it his function to see to it that in the case of dairy farmers the spreading abroad of disease by milk is absolutely prevented. Of course knowledge of the presence of disease often comes after the trouble is well developed and much damage already done. This can easily be understood when we remember that a single discharge from a typhoid carrier may find its way into a large water reservoir and infect hundreds of persons. We can have no police control over our citizens and thus search out the presence of sickness, but we are dependent on the report of the physician who has charge of the case. Those who dwell in towns and are accustomed to seek the advice of a doctor on slight provocation would be astonished to learn how often the early stages of typhoid fever are disregarded or even overlooked. The onset of this disease is usually insidious and often medical advice is not sought until the case is far advanced. Each rural district has wise persons who advise their neighbors in the care of "slow fevers" and thus often cause them to neglect skilled care when much might be done to prevent any spread of the disease. In many rural regions the doctor is not only not just around the corner but is remote and hard to get. Sometimes the doctors are not prompt in making a report to the proper authorities. At first there was some unwillingness to report communicable diseases and a few physicians made the mistake of supposing that they rendered a service to the families in which they practised by withholding such reports. Certain epidemics have taught many communities that it actually pays to have attention given early to any sickness which may spread and harm others, and there is now much less unwillingness to be reported. Some groups of our citizens, by no means merely dwellers in remote country districts, have a deep seated tradition that all their sicknesses are peculiarly their private affairs with which the State has no business to interfere. Prejudices of this type yield slowly as the good results of State supervision become apparent, but they do yield. It has been necessary to remind a small number of physicians of their obligations by a resort to the nearest magistrate. Such appeals to the courts have not been frequent, and the physicians of the State now very generally recognize that they best serve their patients by fulfilling the requirements of the law concerning the reporting of disease.

When the Department acquires information of an unusual prevalence of typhoid in any locality, inquiry is at once made of the County Medical Inspector or of the local Board of Health, as the case may be, as to the facts. If the trouble seem serious at the start, and particularly if it occur in a territory already under suspicion as likely to be a breeder of typhoid, a medical representative is sent out to make a special investigation and one or more sanitary engineers may also be sent to undertake a sanitary inspection. In some instances only a sanitary engineer is sent out for a general survey of the field, to be followed by a medical inspector in case the situation should prove to be in any way complex. When such inspections are made in a district which is under the supervision of a local health board the duties of the Department are merely advisory as to the epidemic itself but may include a thorough inspection of the water supply and the milk supply as factors in causing the epidemic or promoting its continuance. When the community has no regular local health officials and when a local health board is unable to cope with the situation, the Department actively co-operates with the physicians through one or more of its own medical officers and sends one or more of its nurses to supervise such nursing of the sick as it may be possible to arrange for or to open and manage an emergency hospital as has been done in many small places. In other cases, in towns of considerable size, philanthropic citizens have established temporary hospitals in charge of a nurse of the Department. Where hospitals already exist the relation of the Department is usually purely advisory unless some special inability to handle the patients of the epidemic becomes evident.

The medical and sanitary inspections made necessary by an outbreak of typhoid fever often reveal local conditions of far-reaching importance and hitherto unknown or but vaguely suspected. In such cases drastic measures are sometimes necessary not merely to combat the sickness then present but also to protect the community from further outbreaks. Here it is that the power wisely given to the Department to guard the purity of the water supply and regulate the disposal of sewage becomes an important aid in removing dangers that still threaten the public health. Thus the Department is able to bring a certain amount of pressure to bear even upon the larger municipalities that they may be led to overcome the neglect of proper sanitary measures which they have permitted to develop in their midst. Sometimes the Department is called upon to give direct aid to a Board of Health of a large city when such a board finds itself unable to make a satisfactory determination of the cause of an unusual or long continued prevalence of typhoid fever or some other communicable disease.

Evidently then a very considerable influence is exerted by the Department of Health not merely in handling particular outbreaks of typhoid fever, but also, what is really of far more importance, in the removal of conditions which make other outbreaks easily possible. This activity must tend to diminish the amount of the disease. No less really, although not at first glance so obviously, must the abatement of typhoid if not its complete eradication be promoted by the work of the Department in the purification of the water supplied to the citizens of Pennsylvania and in restricting more and more completely the addition of untreated sewage to the potable waters of the State. These are direct agencies which contribute to make typhoid fever less common. Other agencies are also at work, for the average citizen is learning, partly from the teaching of the Department and other teachers and partly from bitter personal experience, that careful management of the household and sound private hygiene do much to check the spread of this disease. In considering the diminishing prevalence of typhoid fever it is difficult to assign with any exactness the credit due to each particular agency that has contributed to this diminution.

We may now consider in outline the course of typhoid fever in Pennsylvania during the years since the establishment of the Department of Health in 1905.

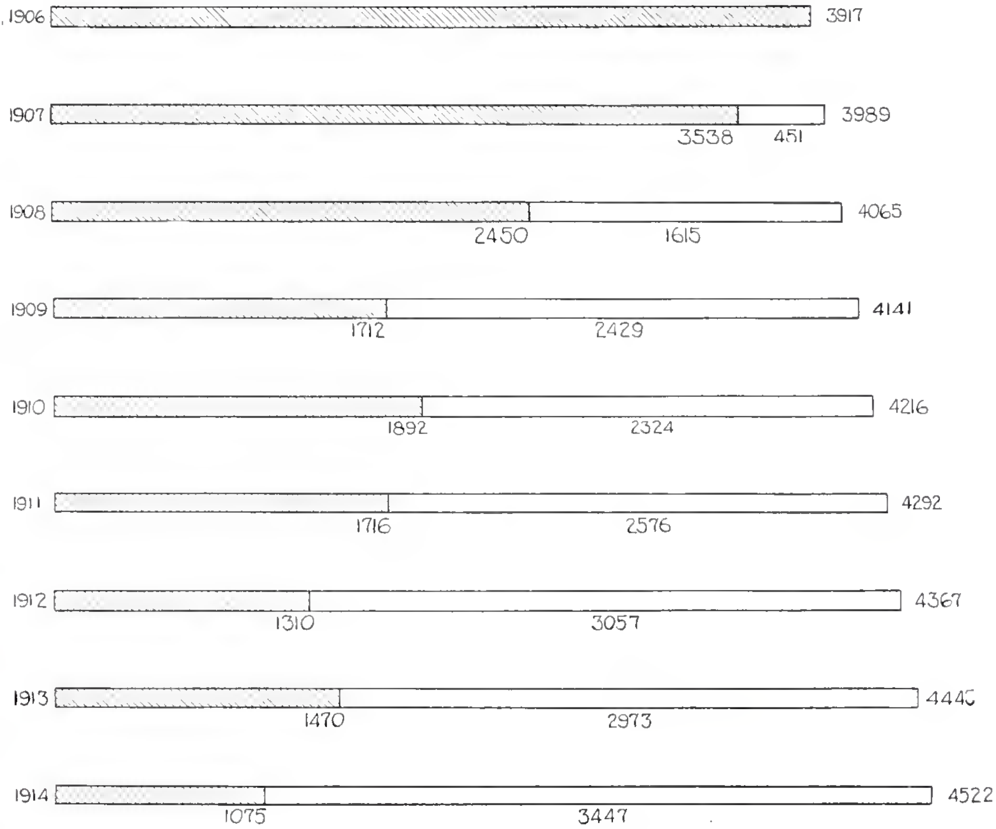
In 1906, the first of our statistical series, 3,917 death certificates were issued for persons reported as dead of typhoid fever during the year. This is a mortality of 54.8 in every hundred thousand of the population, or about one death to every eighteen hundred persons throughout the State. The next year, the number was 3,538, the rate falling to 48.6 in a hundred thousand. Then for two years more the number and the rate went down, after which came a small rise, the number in 1910 going up to 1,892 from 1,712 and the rate to 24.6 from 22.7, being, however, still much less than half the rate of 1906. In 1911 the deaths fell again and still more in 1912. In 1913 once more the number and the rate went up a little, but even then the rate was less than a third of the rate of 1906. In 1914 the number of deaths from typhoid went down to 1,075, which gives a death rate of 13.0, which so far as we know is the lowest rate for Pennsylvania in many years. In eight years then the mortality rate for typhoid fever had dropped from 54.8 to 13.0, in other words the rate had become less than a quarter of what it was in 1906 and the actual number of deaths had fallen from 3,917 to 1,075. The details of this progress appear in a table.

This tells only a part of the story. Had the rate of 1906 continued to prevail in 1907 there would have been not only 3,917 typhoid deaths as in 1906, but a certain number more in proportion to the growth of the population which is nearly 140,000 each year. Reckoned in this way the deaths expected from typhoid, the *morituri* of typhoid, so to say, for 1907 would be 3,989 instead of the 3,538 which are recorded as occurring. The real gain then, or the number of persons "saved" from death by typhoid for that year is 451. This salvage goes on increasing as the rate falls from that with which our statistics start, and, as the table shows, last year 3,447 persons were thus "saved." Our rate for 1906 is certainly high, possibly it is accidentally too high. For the years just before that time the average rate for the states of the "registration area," to which Pennsylvania did not then belong, was thirty-three or thereabouts. This rate, to our shame be it said, was at least three times that of England or Germany.

SUMMARY OF THE MORTALITY FROM TYPHOID FEVER IN PENNSYLVANIA—1906-1914.

	Deaths reported.	Deaths expected.	Lives saved.	Death rate for typhoid.	Percentage of rate of 1906.
1906,	3917	....	....	54.8	....
1907,	3538	3989	451	48.6	88.5
1908,	2450	4065	1615	33.0	60.2
1909,	1712	4141	2429	22.7	41.4
1910,	1892	4216	2324	24.6	44.9
1911,	1716	4292	2576	21.9	40.0
1912,	1310	4367	3057	16.4	29.9
1913,	1470	4443	2973	18.1	33.0
1914,	1075	4522	3447	13.0	23.7
			18872		

DEATHS FROM TYPHOID FEVER IN PENNSYLVANIA 1906 — 1914 COMPARED WITH THE DEATHS TO BE EXPECTED HAD THE RATE FOR THIS DISEASE IN 1906 PREVAILED



It is well known that typhoid was very frequent here about 1906, and our rate, high though it be, may be quite correct; at all events it is all we have. Accepting this basis for our calculation, we should have had in 1914 a few more than 4,500 deaths according to the rate of 1906, and the State thus gained in this single year nearly 3,450 lives that under earlier conditions would have been lost through typhoid fever. Altogether we may estimate the number "saved" from a typhoid death as nearly nineteen thousand in eight years.

What kind of lives have been thus preserved for the Commonwealth? To answer this question we must take account of the proportion of deaths for the different age periods. In a table which follows are given the essential figures of the typhoid mortality for certain groups of ages in the years from 1906 to 1912. The percentages worked out from these data also hold true for 1913 and 1914, but the detailed information for these two years is not at hand.

DEATHS FROM TYPHOID FEVER IN PENNSYLVANIA, BY SEX AND AGE PERIODS—1906-1912.

	Summary.			Under 15.			15-19.			20-49			50-69.			70+			Unknown.		
	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.
1906, ...	3917	2393 61.1%	1524 38.9%	668 17.0%	311 7.9%	357 9.1%	555 14.2%	315 8.0%	240 6.1%	2325 59.6%	1575 40.2%	760 19.4%	303 7.7%	163 4.2%	140 3.5%	49 1.2%	25 0.6%	24 0.6%	7	4	3 ......
1907, ...	3538	2152 60.8%	1386 39.2%	518 14.6%	241 6.8%	277 7.8%	515 14.5%	279 7.9%	236 6.7%	2174 61.4%	1456 41.1%	718 20.3%	284 8.0%	154 4.3%	130 3.7%	46 1.3%	22 0.6%	24 0.7%	....	....	....
1908, ...	2450	1449 59.1%	1001 40.8%	440 17.9%	201 8.2%	239 9.7%	348 14.2%	200 8.2%	148 6.0%	1389 56.7%	900 36.7%	489 20.0%	239 9.7%	131 5.3%	108 4.4%	33 1.3%	17 0.7%	16 0.6%	....	....	....
1909, ...	1712	1023 59.7%	689 40.2%	307 17.9%	139 8.1%	168 9.8%	215 12.5%	126 7.4%	89 5.2%	991 57.9%	650 38.0%	341 19.9%	173 10.1%	92 5.4%	81 4.7%	26 1.5%	16 0.9%	10 0.6%	....	....	....
1910, ...	1892	1152 60.9%	740 39.1%	312 16.5%	167 8.8%	145 7.7%	252 13.3%	138 7.3%	114 6.0%	1092 57.7%	717 37.9%	375 19.8%	200 10.6%	116 6.1%	84 4.4%	34 1.8%	13 0.7%	21 1.1%	2	1	1 ......
1911, ...	1716	1043 60.8%	673 39.2%	258 15.0%	118 6.9%	140 8.1%	215 12.5%	123 7.2%	92 5.4%	1046 60.9%	682 39.7%	364 21.2%	169 9.8%	110 6.4%	59 3.4%	28 1.6%	10 0.6%	18 1.0%	....	....	....
1912, ...	1310	812 62.0%	498 38.0%	213 16.2%	106 8.1%	107 8.1%	169 12.9%	101 7.7%	68 5.2%	784 59.8%	524 40.0%	260 19.8%	115 8.8%	66 5.0%	49 3.7%	29 2.2%	15 1.1%	14 1.0%	....	....	....
	16535	10024 60.6%	6511 39.4%	2716 16.4%	1283 7.7%	1433 8.7%	2269 13.7%	1282 7.7%	987 6.0%	9811 59.3%	6504 39.3%	3307 20.0%	1483 9.0%	832 5.0%	651 3.9%	245 1.5%	118 0.7%	127 0.8%	9	5	4 ......

The table shows that 16,535 deaths from typhoid fever were registered in 1906-1912, inclusive. In round numbers sixty-one per cent. of these were deaths of males and thirty-nine per cent. were deaths of females. There were 2,716 deaths of children under fifteen, that is sixteen and four-tenths per cent., or nearly one-sixth of the entire number. In the quinquennial period of fifteen to nineteen years the deaths numbered 2,269, or between an eighth and a seventh of all of them. For the next three decades of life, from twenty to forty-nine years, 9,811 persons died of typhoid, more than half, or nearly three-fifths (59.3%) of all deaths of this kind. For the next decade of life, from fifty to sixty-nine, there were 1,483 deaths, less than a tenth, or more precisely nine per cent. of the whole number. For the rest of the ages, seventy and beyond, there were 245 deaths and for nine persons there was no exact record of the age, altogether less than two per cent. of the deaths from typhoid fever.

From this distribution of the deaths we may draw an inference as to the benefit which the State has derived from the decline in the rate of typhoid mortality. The total gain is estimated as 18,872 persons, or 11,436 males and 7,436 females. In detail by age periods, the State has had spared to it 3,095 children; in other words, 1,453 boys and 1,642 girls under fifteen were given a chance to grow up. For the period of later youth, from fifteen to nineteen, the State was richer by 2,585 persons, that is 1,453 young men and 1,132 young women in the important period of development, education, and early activity. For the adults of the years of their greatest vigor and physical perfection, from twenty to forty-nine, the gain has been 11,191 persons, or 7,417 men and 3,774 women in the very best years of life. Putting together the numbers for the years from fifteen to forty-nine, we have an addition to the resources of the State of nearly fourteen thousand lives, 8,870 men and 4,906 women; there are eight counties in Pennsylvania in each of which the population is smaller than this or not much greater. Coming now to the period from fifty to sixty-nine, we have a further gain of 1,698 persons, 944 men and 754 women. Such persons are commonly thought by their youngers to be very old or at least in the early stages of senility. It is undoubtedly the time when the physical powers begin to wane but the mental vigor of such persons often shows no diminution and, because of their training and experience, many of the most useful citizens belong to this group. On the whole the gain here is numerically unimportant, although individual lives of the group, particularly among the men, may be a valuable asset. The salvage in the senile group, seventy and beyond, commonly the period of complete superannuation, would comprise only 283 persons, 132 aged men and 151 equally aged women. Not a few of these may still have been vigorous and useful citizens. Any effort to calculate the value of the lives thus saved and added to the active forces of the State would be futile. The essential point is that the State has preserved alive nearly fourteen thousand persons in the years of greatest energy and activity who eight years ago appeared to be doomed to die of typhoid fever.

When we have estimated the number of lives spared by a lessening of the mortality, we are still far from a complete account of the benefit which has accrued to the State in the past eight years from the changing prevalence of typhoid fever. Not only has there been a great decrease in the number of deaths, but there has also been a marked diminution in the number of cases of the disease. This is brought out in another table which shows the number of cases reported in each year and the morbidity rate for the year, or the number of cases in each hundred thousand of the population. The table has other interesting data, of which more anon.

SUMMARY OF THE MORBIDITY DUE TO TYPHOID FEVER IN PENNSYLVANIA, 1906-1914.

	Cases reported.	Cases expected.	Gain.	Morbidity rate.	Percentage of rate of 1906.	Fatality (per cent.)
1906,	24471	....	....	342.6	....	**16.0**
1907,	20080	24940	4860	275.8	80.5	**17.6**
1908,	15157	25413	10256	204.3	59.6	**16.2**
1909,	11842	25886	14044	156.7	45.7	**14.4**
1910,	13835	26359	12524	179.8	52.5	**13.7**
1911,	11803	26832	15029	150.7	44.0	**14.5**
1912,	9676	27305	17629	121.4	35.4	**13.5**
1913,	10520	27778	17258	129.7	37.8	14.0
1914,	7547	28251	20704	91.5	26.7	14.2

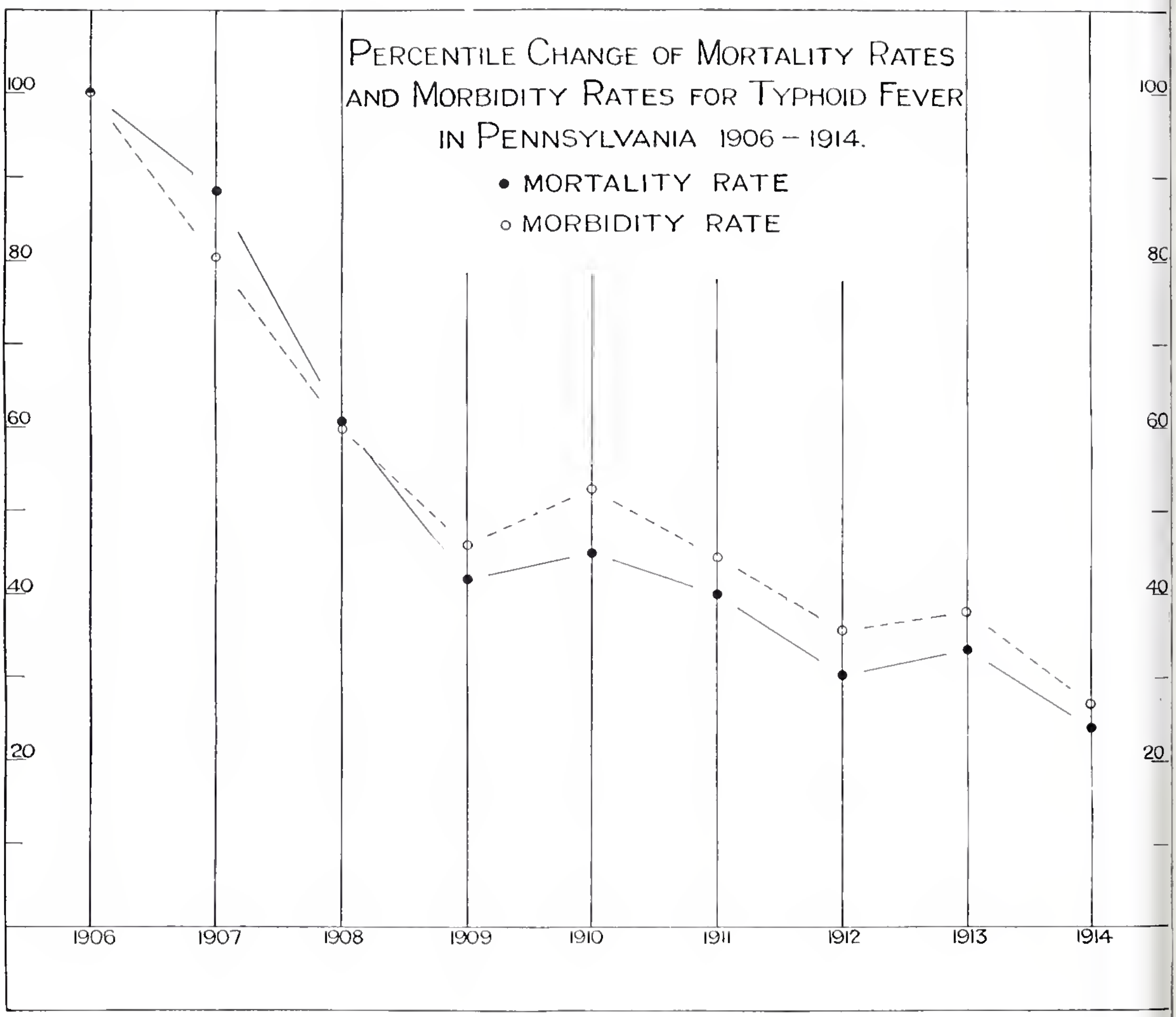
Let us consider briefly just what these figures mean. In the year 1906, Pennsylvanians were ill of typhoid fever in the proportion of three hundred and forty-three in every hundred thousand, that is roughly, one person in every three hundred had the disease at some time during this year. The next year this rate was lowered by a little over nineteen per cent., and the year after it had dropped twenty per cent. more, and dropped again in the following year by almost a further fourteen per cent., a drop in three years of over fifty per cent. Then in 1910 the rate went up a little, but less than half as much as it had declined the year before. In 1911 the rate went down again and also in 1912. The next year the rate made a small upward jump, one-fourth of it from an outbreak in Philadelphia, but it resumed its downward course in 1914 when the reported cases of typhoid were just under twenty-seven per cent. of those reported in 1906. The rate had thus dropped to nearly ninety-one in a hundred thousand, or about one typhoid patient to every thousand persons in the State.

In actual numbers, the 24,471 patients of 1906 had diminished year by year, with small increases in 1910 and 1913, amounting to 2,000 and 844 cases, respectively. This only tells a part of the story. Not only is the number of the typhoid patients, as reported, smaller each year but there is a further gain, which does not show immediately in the figures, because the annual growth of the population is not included. Had the rate of sickness of 1906 continued we should have had in 1914 not 24,471 cases of typhoid as in 1906, but 28,251 cases since the population of the State has grown by eleven hundred thousand. The result is that 20,704 persons in Pennsylvania did not have typhoid fever in 1914 who would have had this sickness under the conditions prevailing in 1906. In this way we may determine for each year the number of persons who in this sense have been spared an experience of the disease. For the period under discussion, from 1906 to 1907, the gain to the State concerns over one hundred and twelve thousand persons. If all these persons had been ill they would not all have died; possibly only about twelve thousand of them would now be dead of this disease.

Let it not be imagined, however, that the others, the remaining hundred thousand, would merely have had the sickness and then got well. Typhoid fever is no such simple affair. It is in truth a slow disease, a "slow fever," slow not only in its oncoming and in its progress, but slow also in its recovery. Under the most favorable conditions an attack means that the patient is unable to carry on his ordinary occupations and earn his usual wages for many weeks. Unless the sick person be cared for as a charity patient in a hospital, the mere expense of the sickness is very considerable. For a hundred thousand persons to be spared such a sickness means an enormous saving in money, to say nothing about the incidental labor and worry of other members of the families. Any attempt to calculate in dollars and cents the exact loss caused by such sickness is unprofitable; let it suffice to say that the amount runs into the millions. Even that is by no means the whole story. Typhoid fever is a very serious illness not merely because of its duration and the chance of death, but also because of its insidiousness. Not every one who passes through an attack of typhoid fever without dying really gets well again. An indeterminate number of these persons are doomed to be forever partially invalided, unable to work up to the reasonable limit of well persons of the same age. Some, again an uncertain proportion, will take up their lives once more with much reduced powers of resistance and will therefore easily fall a prey to other diseases, particularly to tuberculosis. Our statistics show the distribution of sickness from typhoid by age to be similar to that of the deaths, except that the proportion of cases under fifteen is much greater. The important fact remains that over sixty per cent. of the sick belong to the years between fifteen and fifty.

From yet another point of view the State has gained immensely by the reduction in the amount of sickness from typhoid fever. Every typhoid patient is a menace to those about him in the household. Only by strict observance of certain well established rules can this menace be removed. In one of our annual reports now in the press reference is made to a striking instance of this danger. To a certain family in one of our western counties a son came home ill and his disease was not immediately recognized as typhoid fever. In a short time several persons concerned with the care of the sick man and through them other persons in the house or in neighboring families were affected and there were presently over a dozen cases of typhoid all directly traceable to the lack of proper precautions in nursing the first case. Household and neighborhood outbreaks of this kind are not uncommon, although usually less extensive. Even after the sickness itself is over many convalescents retain for a time, sometimes for a long time, the power of spreading the disease unless suitable care is exercised. Such persons are known as "carriers" of the typhoid bacillus or germ, and they may unwittingly and quite innocently do great harm. Every single one of the hundred and twelve thousand persons who might have been expected to have typhoid would have been a potential spreader of the infection while ill and many of them after apparent recovery would have been "carriers" for an uncertain period. Here is an enormous gain which is not the less real because it cannot be expressed in numbers.

The intelligent reader will naturally ask whether our statistics be thoroughly trustworthy. Probably no vital statistics are absolutely correct. In some countries with strict police regulations by which all records are checked up through the constant demand for personal documents a very close approximation to correctness is attainable. In states like ours the chance of error is far greater. Even here, however, certain conditions measurably tend to improve the character of our statistics. The requirement of a death certificate as a prerequisite to burial ensures the registration of deaths from typhoid fever, subject of course to possible errors of diagnosis, errors that can be obviated only by obligatory autopsies. As to the morbidity of typhoid fever there is no doubt that not all cases are reported, and it is also probable that some cases reported as typhoid are really not typhoid at all. Possibly such errors balance themselves, but no one knows. The probability is that there has been and is more typhoid in the State than appears in the reports, but there is



Percentile Change of Mortality Rates and Morbidity Rates for Typhoid Fever in Pennsylvania 1906 – 1914.

reason to believe that the exactness of our reports grows annually greater. The existence of unreported cases would increase our figures and probably strengthen our deductions.

The morbidity rate for 1906 seems high as does also the relation of the morbidity to the mortality. This is often called the case rate mortality or mortality by cases; some statisticians call it the fatality, a term which has much in its favor, although the dictionary makers as yet do not know this meaning of the word, and is used in our table. In the first annual report of the Commissioner of Health, in 1906, the State Registrar called attention to the bigness of the figure showing the fatality of typhoid fever and drew the conclusion that the ordinary fatality of the text-books and hospital reports does not apply to large numbers of cases as they occur all over the State in rural districts and small boroughs with limited means or no means at all for giving suitable care to the patients. This argument was helped by the somewhat higher fatality of 1907 when it rose to 17.6 having been 16.0 in 1906. The text books give eight to ten per cent., as the fatality to be expected, and many good clinicians have reported a typhoid fatality of a little over seven per cent., but, as one of them wisely remarks, "epidemics differ widely." The Pennsylvania fatality was after all nothing so very unusual. The hospitals under the London Metropolitan Asylums Board had a fatality of fifteen for the years from 1904 to 1908, and between 1874 and 1903 the fatality ranged from twenty to fifteen. The State Board of Health of New York reported typhoid morbidities for the years 1908-1911 which are only about two-thirds of those reported for Pennsylvania and fatalities ranging from 16.1 to 19.7 per cent. The Board of Health of Massachusetts reported the fatality of 1907 as seventeen per cent., but in the years 1908-1913 it ranged between 11.7 and 14.2 with thirteen as the average per cent.

The lack of reports of typhoid fever as it occurs in the course of the year may not be a matter of much importance. The fairly uniform percentages of the fatality, very uniform for the past six years, bear the interpretation that, whatever the error in reporting typhoid may be, it is at least fairly uniform. In a diagram are shown the changes of the rates of mortality and morbidity, each being expressed as a percentage of the rate given in the first year of our statistics. The general parallelism of these two curves seems to indicate that no large number of cases has escaped record.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Year's Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility of Tuberculosis. 2. Purity of Milk 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr. 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 67. HARRISBURG, PA. MARCH, 1915.

EPIDEMIC OF TYPHOID FEVER IN SKIPPACKVILLE AND VICINITY

One of the most disastrous milk-borne epidemics of typhoid fever the Department has been called upon to handle occurred during August, September, and early October, 1914, along a retail milk route extending through the villages of Skippackville, Centre Point, and Worcester, in Montgomery County, a distance of about five miles along the Skippack pike. The facts concerning the epidemic are as follows:

About the middle of July one E. N., a tenant occupying half of the farm house of H. T., near Skippackville, sickened with typhoid fever, the source of his infection being indeterminate. This man, who unfortunately lost his life from the disease, was so ill at the time that the epidemic developed that we could not secure an interview with him. Through his wife and friends we traced his movements as fully as possible. He was a laborer, the bulk of his work being that of an assistant to stone masons and at times hod-carrying. He had worked in many sections of the county and had partaken of water and food from many different sources during the period when he must have received infection. A report of his illness was mailed to the Department's Health Officer by his physician, Dr. J. W. Wright, at the end of July, and the house was placarded by the township Health Officer on the first day of August. The required household regulations were established and the usual instruction was given for the disposal of excreta.

The dwelling occupied by the patient and his family was one end of the farm house with separate outside entrance, and to all intents and purposes the equivalent of one end of any two-family dwelling.

It was alleged by the patient's family that no communication whatever took place between the farmer's family and that of the tenant, the milk producer's family asserting that none of them ever entered the tenant's dwelling. The source of this infection being indeterminate, and probably not on the farm, the sale of milk from the farmer's premises was not discontinued.

Subsequent events, however, showed that not all of the facts were given to the Health Officer, and that if given they would have led to the establishment of very different regulations. For instance, it was not intimated during the Health Officer's interview that the heads of the families were brothers-in-law or even friends, nor was he informed that the attending physician had immunized the other members of the patient's family and the members of the farmer's family in the other end of the building. He was distinctly given the impression that the families were not friendly; that they did not enter each other's dwelling, etc., and he so reported the situation to the County Medical Inspector. The fact that Mr. T., the owner of the dairy, at some time earlier in July had suffered with an illness characterized by fever and extending over a period of several days, had also been withheld. It is but fair to say, however, that the illness of Mr. T. was not sufficiently marked to confine him to his bed for more than a few hours each of several days.

The products of the T. dairy had been shipped to the creamery in Cedars near Skippackville until about the first of August, when the proprietor of the dairy farm bought out the retail milk route of one B., an organized milk route extending for about nine miles along the Skippack pike through the villages of Skippackville, Centre Point, and Worcester. Late in the third week and during the early part of the fourth week of August, less than a month after Mr. T. began to deliver milk along this route, numerous reports of typhoid fever were made to the Department's Health Officers in the townships of Worcester and Skippack. A preliminary investigation made the latter part of August by County Medical Inspector Whitcomb brought out information that pointed strongly toward milk as the probable source of the disease and also the fact that a good many other persons were ill with fever of an indefinite type not yet diagnosed by the attending physicians. Further visits were made by the County Medical Inspector on the 26th and 29th days of August and again early in September. The Chief Medical Inspector went over the district with Doctor Whitcomb on the 11th and 12th days of September. These investigations and further studies all tended to confirm the suspicion that the T. milk was the source of infection.

A complete analytical study was made of each case of typhoid fever as soon as practicable after it was reported by the physician.

The detailed study was checked against each possible source of infection in the way of contact, food, and drink. It was very readily proven that no common source of food obtained other than the T. milk which had been used by all who sickened along the route. A number of persons who visited the N. family on the infected dairy farm and took food or drink there, and several who were employed on this farm, also sickened with the fever. Clams had been used by a few of the sick, but a large majority had had no kind of shell fish. Water from wells showing sewage organisms had been drunk by some, but in many instances the only water used tested pure and no one well was used by a number of individuals. Many of those sickening gave no history of contact, either recent or remote, with persons known to have the disease. For this reason we do not include with this report a tabulation against the various food supplies. All the primary cases could be traced directly or indirectly to the one common source of infection on the dairy farm, and all secondary cases could easily be traced to sources mentioned further along in this report where each type of secondary case is more fully discussed.

It would appear from these studies, based on clinical evidence, that milk sold by Mr. T., during the greater part of the month, was infected with typhoid germs. The epidemic first came to our notice early in the fourth week of August and was already so far advanced and so large a number of the consumers of this milk had apparently been infected that the efforts made by the Department and by the attending physicians to save some of the consumers were of no avail. Numbers of those who were already in the prodromal stage of the disease continued to come down with the fever. Consumers of the milk, resident in the district or temporarily boarding there, were reported as ill in various sections of the county and in adjoining counties.

The epidemic, so far as we were able to trace the patients, consisted of ninety-one individuals whose infection was directly traceable to milk or to immediate contact with the sick on the T. premises; of six secondary cases in homes where intelligent nursing could not be secured; of a series of seven interesting secondary cases, due to pollution of water during the epidemic; and of three other secondary cases probably due to the development of a "carrier" in one of the families.

Several interesting and, for a time, baffling cases were found. In one instance a hostler, employed in one of the hotels in the village of Skippackville, denied absolutely having drunk milk or having used it in coffee or with desserts; although the hotel where he worked and ate was supplied with the T. product. On visiting his home we obtained a similar history, together with a report that he not only took no milk in his coffee at home, should he by chance take a meal there, but at no time drank or ate desserts with raw milk or cream. The family milk supply, however, was the T. supply. On very carefully questioning the housewife, whose two little girls had sickened about the same time the husband developed the disease, we learned that a little more than two weeks prior to the illness of the three an unusual supply of T. milk had accumulated in the home, and, in order that it might be used as food, it had been frozen into ice cream. The husband, who consumed no milk at the hotel where he worked and also consumed no milk with coffee or desserts at his home, had, together with the children, eaten heartily of the ice cream.

In two or three other instances persons were found who took no milk in desserts or as a beverage but did use considerable quantities of milk or cream in coffee.

TABLE I.

Dates of Onsets.

		Cases.
§July	20, 1914	1
*August	9	1
*	11	1
	14	3
	16	4
	18	4
	19	1
	20	4
	21	5
	22	2
	23	4
	24	7
	25	5
	26	5
August	27, 1914	1
	28	5
	29	1
	30	2
	31	4
September	1	10
	2	1
	3	2
	4	2
	5	1
	6	3
	7	3
	8	1
	12	1
September	14, 1914	2
	22	1
	24	2
	28	1
October	3	1
	14	1
	15	2
	18	2
	25	2
†December	30	1
‡January	5, 1915	7
†	9	1
†	10	1
		108

§The N. case.
*Infected on dairy farm.

‡Water infection due to well pollution.

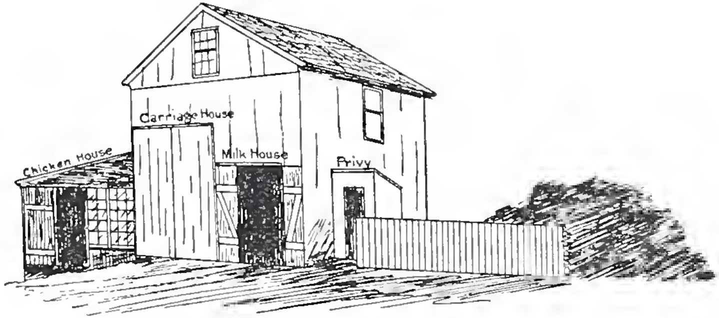
†Secondary to carrier.

Cases Grouped by Place of Residence.

Skippack Township	55
Worcester Township	28
Towamencin Township	9
Hatfield Township	2
Hatfield Borough	1
Marlboro Township	2
Upper Salford Township	2
Lansdale Borough	2
City of Philadelphia	6
City of Norristown	2
	108

It will be noted that two cases sickened less than two weeks after the milk route began to be served from the T. dairy farm. The two persons sickening, on the 9th and 11th of August respectively, were in all probability infected on the T. farm where E. N. had been sick since the 20th of July. One of these persons admitted having partaken both of food and water on the T. premises; the other, a relative of the dairyman, would not admit having been on the premises, but reports reaching our inspectors showed that the statement could not be relied upon, as they learned of his having been seen there.

Over two-thirds of the cases sickened between the 14th day of August and the 8th day of September. The sale of T. milk was ordered



MENACES TO MILK

SKETCH OF INFECTED DAIRY PREMISES,

SKIPPACK MONTGOMERY CO.

discontinued by the County Medical Inspector on the 27th day of August, although some of this product was served, in violation of the order, until the 29th. Counting the extreme period of twenty-five days from the date when the last of this milk may have been used, would enable us safely to include all persons sickening as late as possibly September 24th. This could account for all cases included in the primary infection.

It may further be noted that the persons sickening showed about the usual age and sex distribution with a slightly greater frequency of the early age periods than is common in water-borne epidemics. This, of course, would be expected in a milk-borne epidemic because the use of milk is more common among the children than among grown-ups.

TABLE II.

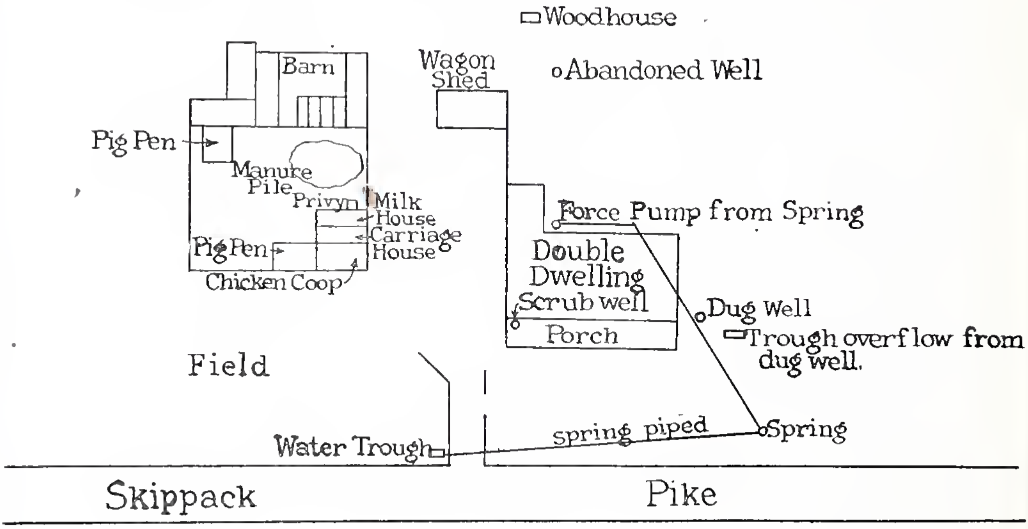
Age and Sex.

Years.	Male.	Female.	Total.	Years.	Male.	Female.	Total.
0– 4,	3	2	5	50–54,	2	2	4
5– 9,	5	12	17	55–59,	1	3	4
10–14,	6	6	12	60–64,	1	1	2
15–19,	6	5	11	65–69,	0	2	2
20–24,	7	6	13	70–74,	0	2	2
25–29,	8	3	11	75–79,	1	0	1
30–34,	2	5	7	Unstated,	1	2	3
35–39,	0	2	2				
40–44,	7	3	10				
45–49,	0	2	2		50	58	108

The sketch on the opposite page shows the general character of the dairy premises and the diagram below indicates the relation of the buildings to the T. dwelling occupied by the dairy farmer and by his tenant suffering with the disease, a relation which is very interesting. The dwelling house stands across the private entrance from the wagon shed converted into a bottling house. The bottling house is immediately adjacent to the barn yard and barn privy.

INFECTED DAIRY

RELATION OF FARM BUILDINGS TO
MILK HOUSE, MANURE PILE, AND PRIVY

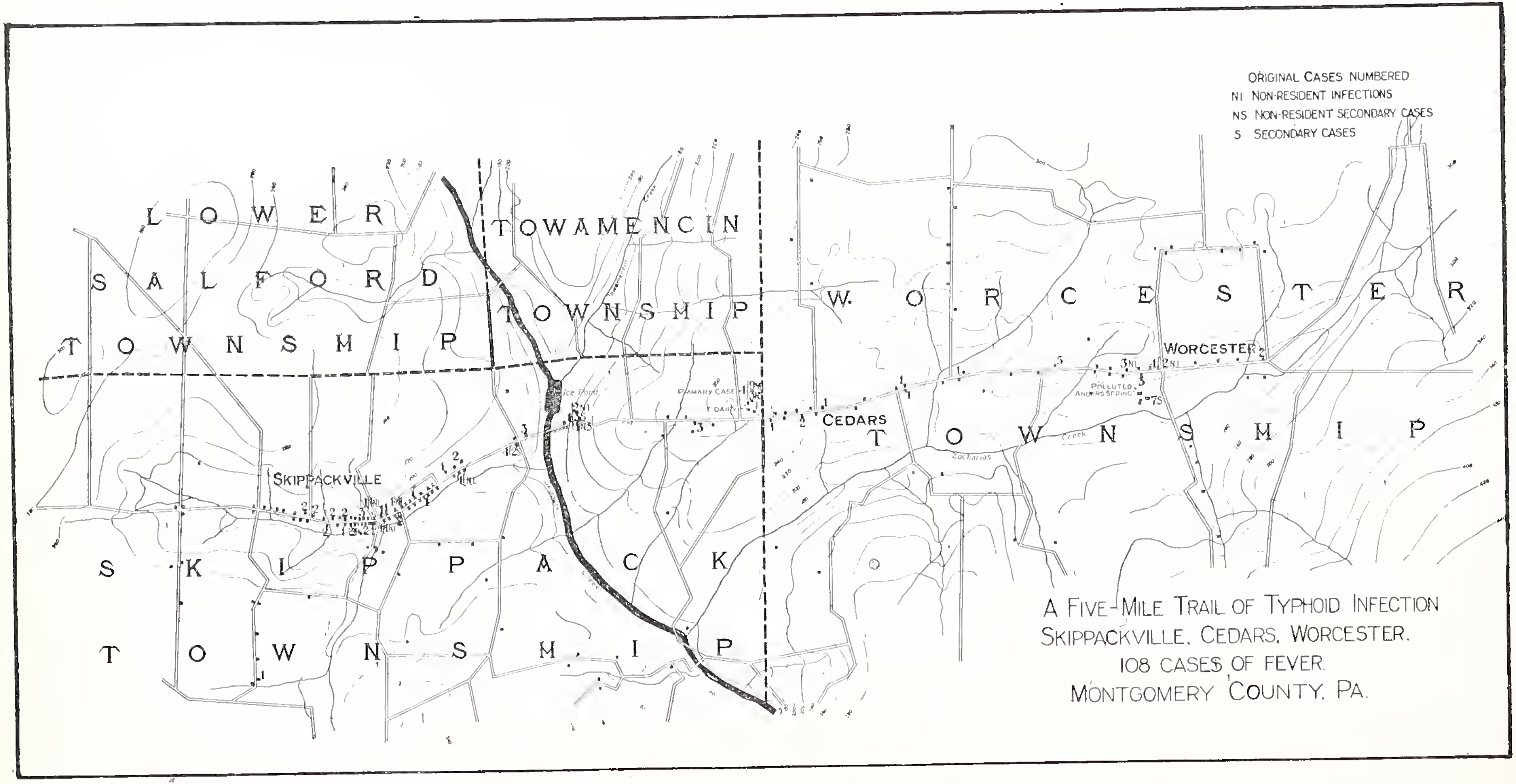


PRECAUTIONS TAKEN.

We were soon convinced that the outbreak would be one of considerable size and that great care would have to be taken to protect the local and public water supplies. The district through which the cases were distributed is for the most part a red shale country with water supplied almost entirely from shallow wells and springs. The ground waters tapped by the wells are found comparatively near the surface and at certain seasons of the year the hills and slopes near many of the residences literally ooze water.

The map for the section of country extending some five miles along the Skippack Pike is reproduced with this report and shows graphically the relation of many of the infected dwellings to small streams and springs in the community. The villages were for the most part settlements of retired farmers. Many of the citizens owned the dwellings in which they lived and were in comfortable financial circumstances. The houses at which practically all the infections occurred, save a few secondary cases, are indicated, together with the number of cases in them, and the location of the polluted A. spring, responsible for the seven secondary cases occurring in January, 1915, and due to polluted water, is shown in relation to the A. dwelling.

Strict precautions were taken with all excreta. Every individual householder was carefully drilled in methods of disinfection and instructed as to the danger of allowing infected material



A FIVE-MILE TRAIL OF TYPHOID INFECTION
SKIPPACKVILLE, CEDARS, WORCESTER.
108 CASES OF FEVER.
MONTGOMERY COUNTY, PA.

to get into the ground without being rendered innocuous. We constantly impressed upon individuals and upon the entire community the danger of polluting their own local water supplies, and called their attention continuously to the danger of polluting the small streams flowing by numerous properties, often within twenty or thirty feet of the dwellings. These streams flow into the Skippack Creek, which in turn discharges into the Perkiomen Creek some few miles above the intake of the Norristown water supply. It was considered advisable, as a preventive measure, to have two representatives of the Engineering Division patrol the district and frequently give detailed instructions in the care of stools and urine. They visited every infected premises several times a week and watched carefully that the disposal of all excreta was in compliance with our printed instructions and done in a way that would protect wells and streams.

The water supplies on the T. farm were sampled on the 5th day of August, the well showing 128 colonies of ordinary bacteria and 8 colonies of B. coli to the cubic centimeter. The water from the spring showed 48 colonies of ordinary bacteria and 12 colonies of B. coli to the cubic centimeter. Advice was given for disinfection of both of these sources of supply. This advice was followed and subsequent analysis showed improvement.

There is a possibility that excreta from the N. household polluted the water prior to this time and that the water thus polluted may have contaminated the milk cans and containers, and thus caused the epidemic along the milk route, although it seems quite as likely that the pollution of the milk may have been done by flies carrying the infection directly from the excreta to the bottles exposed all day long in the bottling house by the barn yard. N. probably used the barn privy until he took to his bed. Neighbors claim to have seen excreta and wash water thrown on the dung hill immediately adjacent to the milk house during the illness and it is possible that infection may have reached the milk house in this way.

At a later date, about the last day of August, two samples of water collected at the T. premises, one from the spring and the other from the dug well, showed a higher bacterial count; that of the spring 2,769 colonies of ordinary bacteria and 96 colonies of B. coli and that of the well 1,440 colonies of ordinary bacteria and 144 colonies of B. coli to the cubic centimeter. The ice was melted, however, when the samples reached the laboratory and these high counts may have been in part due to multiplication of bacteria after the ice melted. On the 24th of September, subsequent to an alleged disinfection, samples were again taken from the T. water supplies, and the dug well at the house then showed no B. coli and but 54 colonies of ordinary bacteria; the spring, no B. coli and 1,500 colonies of ordinary bacteria.

In addition to studying the samples of water taken from the various supplies on the dairy premises, the Department representatives, who were watching the disposal of excreta and enforcing precautions throughout the district, collected samples of water from forty-two different supplies in the community and in each instance where any sewage organisms were found, or where the total bacterial count, exclusive of sewage organisms, was high, the householder was urged to clean and disinfect the well and was given the following extract from the Health Officer's Manual:—

"DISINFECTION OF WELLS, SPRINGS, CISTERNS, ETC.

"The cheapest and best disinfectant for the purpose is freshly burned, unslaked lime. For the ordinary well, one-half barrel of lime should be emptied into the same and the walls above the water level thoroughly scrubbed with the resulting milk of lime by means of a stiff brush. The well should be pumped dry, allowed to refill and a like amount added. It should then be permitted to stand for twenty-four hours and then sucessively exhausted and allowed to refill until the lime can no longer be detected in the water. The water is then purified and should be drawn through the pipes and fixtures until they are thoroughly washed out. In the case of spring or cisterns an adequate amount of lime should be used, and their sides and bottoms should be thoroughly scrubbed."

At the same time, these officers required the emptying and cleaning of privy vaults, the removal of stable refuse, and the abatement of fly breeding nuisances, and corrected such insanitary conditions as were found on the various properties.

A special placard was designed to warn the citizens of the community and the many touring parties who go through the villages by automobile as to the probable danger from drinking water in this community. The placard reading as follows:—

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH

WARNING!

TYPHOID FEVER IS PREVALENT IN THIS COMMUNITY.

BOIL ALL WATER USED FOR HOUSEHOLD PURPOSES.

SAMUEL G. DIXON, M. D.,
COMMISSIONER OF HEALTH.

was placed on all telegraph poles, shops, stables, weigh scales, or such other public places where it might in any way warn those approaching wells not on private property, and these placards were kept in place until long after the epidemic subsided.

Norristown, only twelve miles away, was, of course, kept fully advised as to the progress of the epidemic and great care was practised in purifying the water there, not only during the epidemic but for a long time thereafter.

SECONDARY CASES.

It was impossible to secure a satisfactory nursing service for the many persons sick in the district. Untrained nurses were in charge of most of these cases of typhoid fever until the disease was well developed and the diagnosis established and, in many cases, throughout the illness. Unfortunately, several untrained nurses became infected, either prior to our instructing them in details of personal care and in the care of excreta or subsequently to it. One poor woman who assisted in the running of her household and shared in nursing her husband, two children, and the landlord, succumbed to the illness. Her aged mother who helped with the nursing also contracted the disease.

In one family where a little daughter had visited the original case with her father and later became ill with the disease at her home in a remote rural section, three brothers contracted the disease from two to three weeks after this little girl sickened.

Another secondary case occurred in the family of a bridge builder who received his infection at the S. boarding house in Skippack. His wife, who nursed him at his home at Sumneytown in another section of the county, unfortunately also became infected.

As this report was being prepared word came to the County Medical Inspector of a family outbreak of typhoid fever in Worcester Township on the premises of J. C. A. An investigation revealed an interesting situation so far as probable source of infection was concerned. Mr. A. during the severe drought in the autumn of 1914 built a concrete wall about a point from which a spring emerges during many months of each year and arranged for drawing this water through pipes to his dwelling and barn, during such months of the year as the spring might flow. The introduction of this water to the farmer's premises took place early in January, 1915, and within three weeks from the time the use of this water was begun seven members of the family came down with typhoid fever. In the sketch showing the distribution of cases along the Skippackville pike the spring will be noted as within two hundred feet of certain privies and grounds where typhoid fever occurred in the autumn of 1914 and as the formation of the ground is entirely shale it seems altogether likely that the spring may have been polluted, as soon as the ground waters rose and began to flow, by typhoid excreta not properly handled in the autumn. Bacteriological analyses of the water from this spring showed sewage organisms and it was accordingly placarded and the householder warned as to the danger from its use.

The most interesting group of secondary cases, however, occurred in the S. family. Mrs. S. kept a boarding house and was served with T. milk. She herself and a number of her boarders became infected. The boarders were scattered in various sections of the county, hence an accurate census was difficult to obtain. Mrs. S. was nursed at her home by an eighteen-year-old daughter, who had had no special training as a nurse, but when an investigation was made by the Chief Medical Inspector, she was found to be practising the precautions advised in the circular of the Department as intelligently as a trained nurse would have been expected to carry out such precautions, and she was especially commended for her care. She escaped infection. The mother had a tedious recovery and apparently from subsequent history became a "carrier case." They moved, some time after the mother's recovery, from Skippackville to Washingtonville, Montgomery County, and E. H., who had been so successful in nursing the mother through her illness, sickened about the first of January, 1915, with typhoid fever. Her younger sister, a little girl of six, and a cousin, a little girl of eight, seemingly contracted the infection at about the same time. All three were probably infected from Mrs. S. and after she was supposed to be entirely well.

The infection was particularly virulent in type; the original case, E. N., died on the 11th of September, during the height of our investigation. Eleven additional persons are known to have died from the disease, a mortality of twelve in a total of one hundred and eight cases, giving a fatality of 11.1 per cent.

It is possible that other persons were infected in the community because the two hotels were popular eating houses frequented by automobile parties and, prior to the time the Department began handling the epidemic, abundant opportunity for infection was afforded to such patrons of the hotels as partook of milk or milk products.

The following interesting letter from Dr. W. J. Wright, of Skippack, referring to the number of persons immunized in the infected district and the results of the immunization, his attempts at immunization in persons who were presumably infected, his comments upon treatment with typhoid vaccine, and some details concerning E. H. sickening subsequent to immunization, are of sufficient interest to justify quotation:—

> "I immunized forty-seven persons in homes not infected and none of the forty-seven developed typhoid. I immunized thirty-three in infected homes where one or more of the family had typhoid and only one of

these developed typhoid—E. H. Six others received one or two injections before developing typhoid. In all the cases Mulford's Immunizing three syringe package was used, giving the doses at periods of seven to ten days. Most of the doses were ten days apart. In those who had received the immunizing doses and developed typhoid, two were rather of an abortive type, three ran the usual course, one was a prolonged type with several small hemorrhages. I rather thought it hurried the onset where they were already infected when the vaccine was given. Reactions were very severe, chills, high fever, and sore arms. In three cases I gave small doses (250 millions of killed bacteria) at five to six day intervals during the course of the disease. In one of these I had a severe reaction when the third dose was given. The other two were not helped and both seemed as if the fever remained longer than the usual course. My conclusions were that when infection has occurred vaccine hurries on the approaching onset and reacts very violently.

"During attacks the dose should be very small and is of very doubtful value. I am heartily in favor of its use before infection as a prophylactic. In the N. family I immunized Mrs. N. and daughter, also in the same house the T. family consisting of Mr., Mrs. and baby. None of these developed typhoid. E. H. received three injections (Mulford's Immunizing Package) given at ten day intervals in September. She nursed her mother through a long attack of typhoid (beginning in September, 1914,) covering a period of twelve weeks. She developed typhoid at Washington Square in January following. About the time her mother began to cook and take care of the house. Her sister and cousin in the same house developed typhoid about the same time."

SUMMARY.

The entire outbreak, then not including the N. case, occurring in July, consisted of ninety-one typhoid fever infections due to conditions on the T. dairy farm or to the use of milk served from the farm, and sixteen secondary cases. Of the secondary cases six were house contacts or due to persons assisting with the nursing; seven were water borne cases of typhoid fever, the water having become infected and the use of it having begun some three months after the original outbreak; and three cases were secondary to a "carrier case" succumbing to infection more than three months after the person who originally contracted the disease had returned to work. And finally one of the last mentioned secondary cases contracted the disease less than four months after being given the usual immunizing treatment.

PENNSYLVANIA HEALTH BULLETINS

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Tannin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bath Tubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March, 1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 68. HARRISBURG, PA. APRIL, 1915.

DIPHTHERIA AND DIPHTHERIA ANTITOXIN.

Although the gospel of Antitoxin has been preached for more than twenty years, and more recently faithful effort made to teach what all should know regarding disease and its prevention, diphtheria included, it is pitifully apparent, from reports received by the Pennsylvania Department of Health, that many young lives are yearly sacrificed to the fear of parents who are dominated by a greater dread of the remedy than of the disease itself. It is impossible to explain this dread on any other basis than that of ignorance or willful disclination to accept facts capable of statistical and experimental proof. Undoubtedly favoring this state of affairs also, is the survival of the unfortunate notion that Diphtheria Antitoxin weakens the heart. A few plain words, which it is to be hoped all may understand, about diphtheria and its treatment need no further apology.

It is essential to point out that diphtheria is vastly more than a sore throat, croup, or a running nose. These are mere danger signals, not the danger itself; mere surface indications of the activity of the germs, diphtheria bacilli, which indeed are making the throat sore but are also attacking the very life of the sufferer. They are forming a poison which enters the blood and goes with it through the body damaging practically all tissues it meets, perhaps destroying some of them. Paralysis of the throat, of the eye balls, the arms or legs; inflammation of the kidneys; degeneration of the liver and the heart, and paralysis of the nerves controlling the heart are every day occurrences in neglected cases of diphtheria. It is the poison—the diphtheria *toxin*—which does all this and which eventually kills the patient—not the sore throat, not the croup, not the sore nose.

This can be and has been proven time and again. Diphtheria bacilli can be grown in glass flasks partly filled with a suitable fluid. They manufacture here the same toxin or poison that they do when growing in a throat, the toxin leaving the germs and becoming mixed with the fluid. It is then easy to filter off—remove—the germs from the liquid and inject some of this liquid containing the poison into a guinea pig. The animal promptly dies. He was given toxin only—no diphtheria bacilli. He had no sore throat.

Fortunately for us the tissues of our body, when attacked by the diphtheria bacilli and their toxin, can and often do supply a substance capable of neutralizing or destroying the diphtheria toxin, in this way preventing its doing the harm or causing the death we have already mentioned. This substance which renders the toxin harmless is known as *Antitoxin*. If you mix soda with muriatic acid they combine and form an entirely new substance unlike either the soda or the acid. Just so when Antitoxin is mixed with toxin, the toxin disappears and nothing in any way harmful is left. This ability of different persons to form antitoxin varies greatly. Some do it readily, others not so well. The same is true of the way in which diphtheria bacilli form toxin. It would seem that oftentimes the toxin was weak or in small quantity and in another case that it was of large amount or so powerful that the patient was killed before his tissues could do anything to protect him. There is no way of finding out how much toxin the germs in any particular case are going to produce or whether the patient will be able quickly to produce enough antitoxin to protect himself—unless, of course, one just sits about and waits till he recovers or dies. Before the use of antitoxin in the treatment of diphtheria, three or four out of every ten cases died,—thirty to forty per cent. That is, of every hundred cases there were from thirty to forty patients who could not conquer the disease through the efforts of their own bodies to supply antitoxin.

It was discovered nearly twenty-five years ago that diphtheria antitoxin, formed in a horse, when injected into the human being suffering with diphtheria would neutralize or destroy the toxin and overcome the disease—indeed make it quite immaterial whether his own tissues did anything to help him or not. In making antitoxin the horse is given a small dose of diphtheria toxin—obtained in the manner already described. A few days later the horse gets a larger dose, and so on for several doses, until in the end it may be given what would be a fatal dose if it had not gradually developed a power of resistance under the influence of the smaller doses. After each one of these doses the blood and tissues of the horse have formed more and more antitoxin to overcome the poison and finally a quantity of blood, which contains this antitoxin, is taken from one of the large veins. The horse is not bled to death, nor is the animal injured by the procedure. The antitoxin is then separated from the blood by a rather complicated process, which we need not describe, purified and tested for its strength or ability to neutralize toxin and then put in syringes for the treatment of diphtheria.

Since 1905, when the Pennsylvania Department of Health commenced supplying antitoxin to the poor, the death rate in diphtheria has dropped in that State from about forty per cent. to an average of about eight per cent. That is, when the antitoxin is given only eight in every hundred patients with diphtheria die; that twenty or thirty in every hundred formerly certain to die now get well. It is safe to say that except in the use of antitoxin no other material change has been made in the treatment of diphtheria in fifty years at least. The discovery of the antitoxin used for the cure of diphtheria is next in importance to Jenner's discovery of virus for vaccination to prevent Smallpox.

We have mentioned above that it is the toxin which kills and pointed out that a guinea pig injected with it promptly dies. Try another experiment, this time with two guinea pigs. Let them be just about the same age, same weight—as much alike as possible in size and health. Give each of them the same amount of toxin, and to *one* of them give at the same time a sufficiently large dose of antitoxin. The one which receives toxin only, sickens rapidly and dies. The one which received both toxin and antitoxin, not only *does not die, but may scarcely show any signs of illness.* It is hard to believe that any one could doubt the value of antitoxin, when such facts are made known to them. Such experiments are daily done in Laboratories where antitoxin is made, in fact, the antitoxin is tested in this way to learn how "strong" it is, before being used in treating human beings.

Toxin kills—Antitoxin saves. Thirty or forty or more out of every hundred patients, ill from diphtheria but getting no antitoxin, die. Only eight out of every hundred die if treated with antitoxin. If antitoxin is as able to save as we have pointed out why must even eight die? We think this can be answered readily. At any rate the fact that antitoxin as commonly given seems powerless to save all should not be used as an argument against its effectiveness. Suppose your home was afire. In the first place you would not wait several hours before calling help in the shape of the fire department. In the second place, no matter how promptly the firemen arrived, you would not expect much if they left their fire hose behind and brought a few flower sprinklers to put out the flames. Finally you certainly would not expect to see your house restored no matter how much water they poured on the ruins, through the largest of hose, after the damage was done. There was a time at the very beginning when it might have been possible to stop the fire with a watering pot.

A child, with diphtheria is pretty much like a house afire in many respects. Toxin is working its destruction from the very first, but there is no way of telling how much of it is at work. Antitoxin is the water and if it is not used *quickly* and *plentifully* it is not going to put out the fire the toxin has started any more than a bucket full of water is going to save your house a half hour after the fire began. And no quantity of antitoxin will restore damage already done any more than any quantity of water poured on the ruins will raise a new house for you. Eight patients out of every hundred still die because antitoxin is not given soon enough; not enough is given to do any good, or perhaps the case has been one of those in which the toxin was so virulent that the patient was overwhelmed and killed in spite of it as the burning oil tank burns to the end in spite of the water thrown on it.

Unless sufficient antitoxin is given to neutralize all the toxin it is perfectly plain that the left over toxin is still free to work harm; and herein lies the explanation of the deaths from heart failure that have been unfairly laid at the door of antitoxin. No doubt just as many or more cases died in just the same way in the old days before antitoxin was used—perhaps the greater part died promptly—died when in every way they still showed evidence of illness. Antitoxin not having been given, there was nothing to slow up or halt the course of the disease in any way. In cases which receive antitoxin too late or in insufficient doses, even that which is given may have been enough to relieve the throat, or to improve the condition of the patient even to the extent of his being able to leave bed. But the left over toxin—*not the Antitoxin*—gradually brings about changes in the heart and its nerve supply which finally cause death, often suddenly and when the patient seems to be practically well. Or it may be that the damage was already done the heart before the antitoxin was given—and antitoxin will not repair damages already done.

If there is any lesson to be learned from what has been so far said, it is plainly this: Never trifle with a sore throat and be suspicious of croup. Send for your physician promptly. If he tells you Mary unfortunately has diphtheria and must be given antitoxin, do not refuse to let him use it, for antitoxin is the only remedy that can make Mary's chances of getting well ninety in a hundred instead of sixty in a hundred. Is she not entitled to the additional thirty? Remember that even large doses of antitoxin do no harm. It is not necessary to go further than the records of the Pennsylvania State Department of Health to find reports of cases in which 100,000 to 300,000 units of antitoxin have been given to children up to fifteen years of age, and doses of 30,000, 50,000 or 60,000 or yet more to very young children—even less than a year old. So far from being injured by the antitoxin these patients got well. Age, in fact, has nothing to do with the dose. Perhaps from 10,000 to 20,000 units are sufficient to cure average cases, but the size of the dose depends entirely on the work to be done. In every diphtheria patient there is an unknown quantity of toxin or poison to be overcome, and the only way to overcome it is to begin giving antitoxin at once and keep on giving it regardless of amount until the patient shows signs of improvement, and even after that a dose or two to make the improvement certain and continuous. The membrane will loosen, the throat lose its fiery red look, the little sufferer brighten up—but more important than these signs, the rapid, weak pulse will become slower and stronger, and antitoxin should be given until it does.

Every day that is lost between the beginning of sore throat and the time antitoxin is given very much lessens the effectiveness of the antitoxin. After five or six days perhaps there is no use giving it at all. If given on the third or fourth day it will no doubt neutralize toxin produced from then on—but the toxin produced on the first and second day has already done a certain amount of damage—perhaps sufficient to cause death in the end. It is probably safe to say that if every case of diphtheria were given antitoxin and enough of it on the day the disease began—all cases would get well.

Always better than cure, however, is prevention, and a great deal can be done to prevent diphtheria. The germs may reach the throat, the nose, the windpipe by being inhaled with dust. They may be taken in by drinking or eating from cups or dishes used by one ill or about to be ill with diphtheria, or such a one may cough or sneeze them in the face of one perfectly well. They may be carried on the clothing of those who come in contact with cases. By far the greatest number of cases occur in young school children and most of them in the early fall—about the time schools reopen after the summer vacation.

The youngest child at school is old enough to understand and should therefore be warned of the danger of taking bites from playmates' candy, apples or what not—of drinking after them from the same cup. They should be taught the importance of avoiding other children who are not well as they can see or are told. It is the parents' right too, and their duty, to know something of the health of all the pupils associating with their own children, that they may quickly remove their own from possible infection. On the other hand it is no one's right to urge a sick child to school when he is not only a danger to all about him but through such injustice suffers himself.

Public gatherings of all kinds—the unventilated and overcrowded moving picture house, trolley cars—are, no doubt, sources of infection in many instances. This is particularly true when there is an epidemic of disease in the locality and they should be especially avoided at that time.

What has just been said about prevention applies as well perhaps to all other contagious diseases as it does to diphtheria. There is, however, another way of preventing diphtheria, most often employed where it is known beyond any doubt that one has been exposed to diphtheria. This is by the use of a relatively small dose of antitoxin. It has been proven that the germs of diphtheria (diphtheria bacilli) cannot thrive in the throat and set up the disease unless their toxin first of all can injure the tissues of the throat and prepare a place for them, as it were. If then we supply the person with antitoxin before such damage is done, that antitoxin can destroy at once any toxin formed, as fast as the germs lodge; the tissues of the throat are preserved, the bacilli die off or otherwise disappear and no diphtheria comes about. These small doses of antitoxin are called immunizing doses. They should be given to all the children in a family who perhaps for a day or two have been playing about with a little brother or sister who is found later to have diphtheria. Indeed, not only the children but the adults in the family should also be immunized. Like large doses, the immunizing dose is entirely harmless—as a rule nothing whatever follows the injection—except protection from diphtheria. This protection probably lasts for a few weeks only—but it continues sufficiently long to prevent infection from any given case. Sometimes the person has been exposed to the disease too long—may even be falling ill with it when immunized. Under such circumstances it may not be possible to prevent the disease but should it follow, it will in all likelihood be mild. We have before us now a letter from a physician which reads in part:—"In all I had eleven cases in eight families. I gave immunizing doses to about thirty. In no case did I have a case of diphtheria following in a patient that I had previously given an immunizing dose of Antitoxin." As a matter of fact the Department has records covering thousands of immunizing treatments and the number of persons so immunized and later developing diphtheria is extremely small.

Take, then, all the possible precautions you can to keep the children away from diphtheria, but when they get sore throat don't waste time—perhaps a child's life—with home remedies and your neighbors' prescriptions. Call your doctor. If he wants to give antitoxin see that he gives it plentifully rather than forbid him to use any, and, let all the rest of the family be given an immunizing dose at once. We are persuaded that it is not necessary for even eight of every hundred diphtheria patients to die, but they will until the importance of using antitoxin early and in large doses is recognized by all.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility of Tuberculosis. 2. Purity of Milk 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr. 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March, 1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April, 1915,	Diphtheria and Diphtheria Antitoxin.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 69. HARRISBURG, PA. May, 1915.

FLIES AS A FACTOR IN INFANT MORTALITY.

Insects of various kinds attract nowadays in ever-growing measure the attention of medical men. Mosquitoes, as distributors of malaria, are believed by some writers to have been largely instrumental in the enfeeblement and ultimate ruin of ancient Greece. The same insect has repeatedly decimated the population of tropical countries, and was the essential factor in preventing the construction of the Panama Canal by the French. A species of fly makes certain parts of Africa practically uninhabitable. Our common or house-fly has contributed its influence to the fortunes of war, and there is reason to believe that the same insect has often caused much destruction of human life in the past, even in times of peace. History indeed chronicles many catastrophes which the sanitarian is able to explain in a far more satisfactory way than the historian, the economist, or the day dreams of the philosopher.

The recognition of the part that insects play in the transmission of disease is of comparatively recent development. In fact more work in the study of entomology along these lines according to history has been done in the past twenty years than in all of the previous centuries and the impetus to this study came from the discovery that the mosquito is a necessary intermediary for the development of the organisms that produce yellow and malarial fevers.

It is little more than fifteen years since the relation of insects to public health became apparent and the information gathered through the work of zoologists and bacteriologists has been so arranged and applied by the students of the problems of public health that dangers to human health and life from this source have been convincingly demonstrated; the control of disease-carrying insects is already a well recognized function of the health officer.

In order to understand the reason why the house-fly is a factor in infant mortality, it is necessary to understand something about the fly itself.

This member of the family, of which it is the type, develops from a glistening white egg, about one twenty-fifth of an inch in length. Each female fly lays perhaps a hundred and twenty such eggs four times, possibly as many as six or even more times during its short life. Under favorable conditions the eggs hatch soon after being laid, usually in about eight hours, but this process may be delayed a couple of days.

The results of the hatching are white larvae or maggots, which are slender in form, smaller than the egg, tapering from a blunt tail to a pointed head. They are exceeding active, grow rapidly, and molt or change the skin twice during the larval stage. This stage lasts approximately five days, but is much affected by temperature and the food supply. It ends with an alteration of the outer skin, which begins to harden, swells out, and changes in color from white to a deep chestnut or dark brown.

While this change is taking place the larva contracts, and the hardened, cylindrical case gives rise to the pupal stage. This stage lasts ordinarily about five days, but at low temperatures it may continue for a very much longer time, during which the transformation from larva to a fully developed fly takes place. The latter emerges through a round opening in the anterior or front end of the pupal case. This last form, the fly itself, is the final or imago stage.

Until very recently it was taken for granted that the house-fly lived through the winter in the female adult stage and that such individuals laid the eggs which produced the rapidly increasing broods in the summer. Flies were noticed to linger in warmed houses in the fall, and it was taken for granted that some of them lived through the winter in kitchens, stables, bakeries, and similar places. It is very probable that the flies seen during the winter and which really do hibernate have been species similar in appearance to the house-fly. The hibernation theory was, that on the advent of winter, most of the house-flies die, and the remainder hibernate.

Observations made at "The Academy of Natural Sciences of Philadelphia"* have shown that freshly emerged house-flies appear in the open in February and March and proved conclusively that they had just emerged from pupae cases. The specimens that appear in the early spring are of both sexes. Sanitarians in England have recently made exhaustive studies in relation to this part of the life-history of the house-fly and report that they found no evidence to support the belief that the house-fly hibernates. The customary explanation of the perpetuation of the house-fly from year to year

---

*Experiments made by Henry Skinner, M. D., Sc. D. See *Entomological News:* 1913, XXIV, 303; 1915, XXVI, 263.

has now been fairly tested, and the evidence fails to support it. The United States Bureau of Entomology in a recent bulletin states that the prevailing idea that the house-fly passes the winter as an adult, hiding in the cracks and crevices of buildings and in straw stacks etc., has never been proved experimentally, and that on the other hand, there are on record some experiments and observations which indicate that the usual manner in which the house-fly passes the winter is in the pupal stage.

The house-fly has six legs. Each foot has two claws and below each claw a pad (pulvillus) from which exudes a sticky fluid. The body and legs are covered with fine hairs by which the surface is enormously increased. The legs in particular resemble fine brushes well suited to pick up and retain any infective material with which they may come in contact. It is a suctorial and not a biting insect. For this reason it does not inject the cause of disease into the human being as the mosquito inoculates yellow fever or malaria. It is evident that whatever bacteria the fly carries it transmits to human beings or to their food in a purely mechanical way.

The first part of the food tube consists of a digestive tube and a crop or "craw," which is used for temporary storage. The fly is a glutton and because of overeating it ejects material from the mouth as frequently as it does from the intestinal tract; in addition, at the time of feeding, it deposites a liquid, probably saliva, upon any particles of solid food for the purpose of dissolving them for suctorial purposes. While feeding it squats close to the food, its body in contact.

Very careful studies of all conditions relative to its origin and the first stage of life show that no material other than *waste* serves as birth place and early home of the common fly. Further, it has been shown that fully nine tenths of all flies found in certain widely separated communities had their origin in fecal material, *principally horse manure.* It is possible for them to develop under other conditions,—in barn yards, pig pens, chicken yards, privies, ash and refuse heaps, kitchen wastes, garbage, rotting wood, dead animals, and other waste materials; in fact, in any kind of fermenting and putrefying material which will give rise to a sufficient amount of heat and moisture to make an incubator.

Though they originate under these conditions they spend the greater portion of the time feeding within kitchens, garbage pails, and privy vaults. For these reasons it is possible to state that the presence of the house-fly is perhaps the best index of insanitation which we possess, and the cleanliness of our environment is indicated by its absence.

While the places in which the fly is born and develops are such as to cause disgust, they do not in themselves furnish a reason for suspecting the house-fly of transmitting disease. It is because of its habits of living and the peculiar activities of its digestive tract that we look upon it as a probable transmitter of the cause of disease. It is also evident that in this transmission the house-fly acts merely as a common carrier and is in no wise selective in relation to its chance guests; nor is there at present any evidence to show that the house-fly acts an intermediate "host" in the development of any microorganism causing disease. Evidence is constantly accumulating to show that it is an agent probably responsible for a large portion of the annual mortality.

A consideration of the origin of the house-fly naturally suggests that sewage bacteria may be found on or in its body, and the keen, inquisitive interest of the adult fly in all kinds of excrement wherever accessible makes the presence of such bacteria much more probable, and in addition we should expect such causes of disease to be picked up and carried as may occur in discharges from the throat and nose.

The fly is peculiarly adapted to carry bacteria and careful studies have been made to detemine the number of types found on and in the bodies of those trapped for the purpose. From the work of several scientists, it has been shown that a single fly, a "wild" fly such as may fly into the laboratory from a city street, may carry from 570 to 4,400,000 bacteria on the outer surfaces, chiefly on the legs, and from 16,000 to 28,000,000 within the digestive tube. The variation in numbers depended upon the month of the year and the probable age of the fly. The counts increased rapidly from April to a maximum in July and August, when they decreased to the counts found in April and May; low counts in July and August practically always meant the advent of swarms of newly-hatched flies. As will be shown later, this change in monthly counts coincides with the changes in mortality of infants from diarrhoea or "summer complaint."

As to types or kinds of bacteria, the assumption noted above has been confirmed. For the most part, only those bacteria associated with waste materials, principally fecal, have been found. The colon bacillus, which is commonly searched for as the evidence of sewage pollution, occurs in abundance early in the month of July. Disease producing bacteria have been found by many observers and nearly always during the months of July and August.

Flies captured both in densely populated cities and in towns have frequently been found to carry bacteria which cause disease when they reach the human gastrointestinal tract. There is also evidence that the cause of several other diseases may be so transmitted, and while in some cases, there is insufficient evidence to prove it positively, it has been demonstrated by experimental work that when material containing them is put in places available for flies to feed upon, such bacteria are afterwards recovered both from the surface of the fly and from the intestinal contents.

Except for some vague generalizations, as one of Sydenham's about two hundred and fifty years ago that an unhealthy autumn usually followed a summer abounding in flies, the earliest medical report of observations of this character was on the transmission of cholera in Malta in 1849, but not published until 1873. These were confirmed in Italy in 1886 and later verified by many competent observers. During the Spanish-American war, in the Boer war, in camps of great armies of laborers as at Panama, it was demonstrated that typhoid fever and dysentery were commonly transmitted by flies. These three intestinal conditions are due to bacteria which must be taken in with food or drink in order to cause the disease.

In the same way it may carry nearly all the intestinal diseases. In this class are to be placed "summer complaint," the diarrhoea (or dysentery) of infants, and cholera infantum.

There is abundant evidence to show a relationship between the abundance of flies and deaths from these diseases. It has been repeatedly noted in Pennsylvania that the number of flies, the number of bacteria found on and in flies, and the number of deaths of infants from "summer complaint" increase coincidently. Carefully plotted curves drawn to show the relation of the rise and fall of these factors present the closest possible approximation. When all the evidence is reviewed, it becomes apparent that infant mortality (at least from intestinal disease) is largely due either directly to fly-transmitted bacteria or to conditions in the household of which it is the best possible index.

While it is possible in military camps actually to prove the transmission of typhoid fever in this manner, it is far more difficult to show positively that the diseases of infants in the varying relations of country and city life may be so transmitted. Recently under the direction of the New York Association for Improving the Condition of the Poor observations were made by comparing groups of infants under conditions involving protection from flies with those for whom such protection could not be provided. No bacteriological observations were made during the course of this work, but it was found that twice as many of the babies living so as to be exposed to flies developed diarrhoea ("summer complaint") as of those who were protected against the insect. Coincident studies were made of the other domestic conditions of the household and the use of artificial or breast feeding.

Probably the most important factor in the mortality from infant diarrhoea or "summer complaint" is the type of feeding, and it has already been shown that two and a half times as many infants develop the disease when fed on artificial food as when breast fed. The New York observers found that the influence of flies and dirt combined equalled the influence of artificial food. It is obvious that the combination of flies and dirt and artificial feeding is most to be feared.

In Pennsylvania during each year an average of 28,000 children under two years of age die as the result of all causes. Out of these approximately thirty per cent., or 8617 babies, die from diseases of the gastrointestinal tract. In the diagram on the opposite page the distribution of these deaths over the months of the year is depicted as it appears in the statistics of Pennsylvania. While the cases are fairly uniform in number for the first five months there is a marked increase as the warmer season comes on and the larger figures last well into the autumn. The diagram indicates that this period of numerous deaths from intestinal diseases in young children is also the period when the systematic counting of flies shows them to be more numerous as well as the time when, according to the studies noted above, flies carry more bacteria, particularly such as are likely to cause disturbances of the bowels. The relative frequency of flies is presented by the figure of a fly of various sizes which of course the fly generally does not have, since it resembles Minerva rather than Topsy in that is springs into activity fully developed and does not grow. Other writers, notably Niven, dealing with certain English statistics, have drawn curves which show a striking relation between the fly season and deaths from diarrhoeal diseases. The parallelism of such curves is not exact, nor should it be expected to be, for, whatever the actual guilt of the fly may be, it is not the only cause of the diseases which we are now considering; it is but one, possibly the most important one, but still only one of the many factors in the mortality of early childhood. We should also remember that we are dealing only with the deaths attributed to diarrhoea and dysentery and that here the individual resistance as well as the medical attention given to the sick children much affect the curve which may be drawn. It would probably be even more instructive if we had figures to show the presence of intestinal disturbances in children in the months when flies are busy—the morbidity, rather than the actual deaths, but we can hardly hope to have trustworthy statistics of this kind.

It is obvious that the causes of these deaths must be introduced into the digestive tube by way of the mouth. Undoubtedly improper combinations of food elements play an important part, but since these may be limited to milk in some form, it is evident that

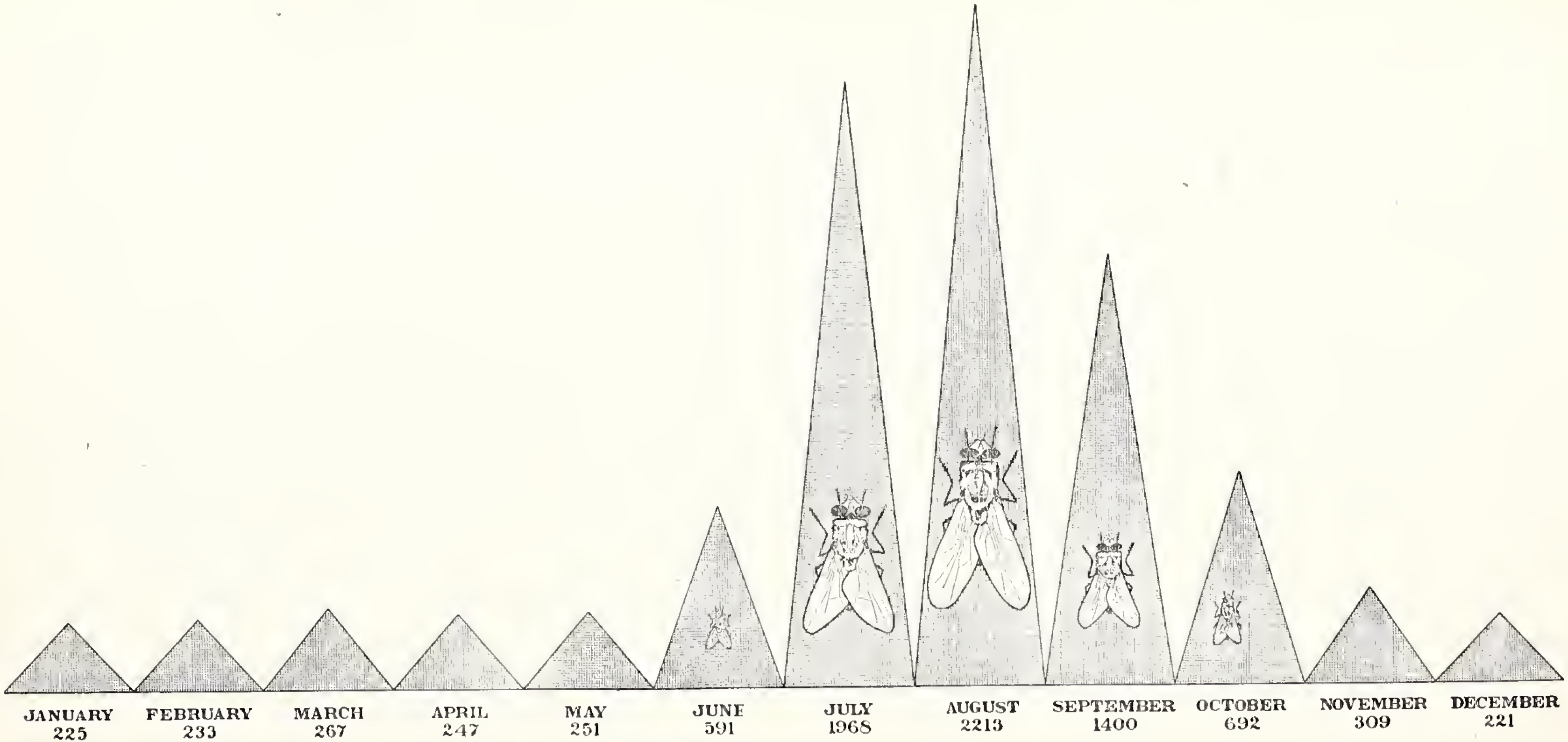


DIAGRAM SHOWING FOR ONE YEAR THE DEATHS IN PENNSYLVANIA OF PERSONS UNDER TWO YEARS OF AGE FROM DIARRHOEA AND ENTERITIS BY MONTHS.

some other factor is responsible; this is accentuated by the fact that more careful combining of food elements has not resulted in a reduction of the mortality rate. It is obvious then that bacteria introduced from fly contact with food, or with the nipple of the nursing bottle, or food containing bacteria from other sources are the likely causes of a large proportion of this annual death harvest.

In the same manner in which the fly transmits the cause of intestinal disease, it acts as a carrier for the cause of tuberculosis, diphtheria, and of diseases of the eye, and possibly of infantile paralysis. It is true that these are probably far less frequently so carried. However, it is but necessary to recall how often flies are found feeding on sputum to realize the possibilities. An observer in Massachusetts, after extensive work, concludes that flies ingest tubercular sputum and excrete tubercle bacilli, the virulence of which may last at least fifteen days, and that there is a real danger to human beings from the ingestion of such specks on food.

It has been shown experimentally that the cause of infantile paralysis is frequently found in nasal and throat discharges. This is, of course, true for diphtheria and it requires no unusual vision to picture the mechanical transmission of disease-producing bacteria to the eye of the sleeping infant.

Probably in no other insect is there to be found the same combination of rapid reproduction, agility, speed, and power to spread disease, coupled with a commonness which had led to almost total disregard. Obviously one means to reduce infant as well as adult mortality is to reduce—to exterminate the common fly. It is no mean enemy and work to be effectual not merely must begin early but must be constant throughout every month in the year. During the cold season they will be largely in the pupa stage and much will be gained if they can be destroyed at this time.

Screening of home and food and "swatting" must, of course, be practised for individual comfort and hygiene. But it cannot be too strongly emphasized that these are but for temporary relief and will not reduce the total number of flies nor lower the human death rate. It should be remembered that many, possibly at least half, of the flies destroyed by the most successful "swatter" are probably females that have already deposited the eggs from which a new generation will presently emerge, yet more numerous and ubiquitous.

Flies originate and live in *waste materials.* Preventive measures to be effective must be directed to these and not to campaigns against an already invading army.

In a broad way, waste materials in which fly breeding may take place may be divided into two classes, those of no possible further use and animal manure which has a fertilizing value.

The first should be destroyed as soon as practicable after its production. To permit it to accumulate may, within a period of ten or twelve days, give rise to one hatching from each fly choosing it for the deposition of her eggs. The ways and means for the disposal of this class of waste are matters of domestic economy and may be easily and successfully dealt with by the careful and energetic housekeeper.

Nine tenths of all our house-flies develop in horse manure and the treatment of this waste without destroying its fertilizing value has been the subject of many investigations.

It may be that the greatest economy in individual cases continuing over long periods of time is to be found in the construction of fly proof vaults or pits to which the manure is to be removed daily or, at least, often enough to prevent egg laying and hatching. This should be combined with treatment of cervices and other places of accidental manure deposit using one of the substances mentioned below.

To carry out this plan is not an immediate or universal possibility. For this reason the treatment of the manure is of great importance.

Many experiments have ben made under the direction of the United States Department of Agriculture and a number of satisfactory substances have been studied which are destructive to the fly, non-injurious to the manure, and lacking in poisonous properties. The most effective, economical, and practical of the substances which have so far been suggested are as follows:

Ground rock phosphate. This substance may be purchased in any quantity up to car load lots and is one of the most inexpensive agents said to prevent the deposition of eggs by the fly. As it is also a fertilizing agent it will increase the value of manure. It is to be applied in the proportions of two pounds of phosphate to eight bushels of manure, distributed over the droppings before and after removal.

Borates. In recent experiments made by the United States Department of Agriculture, using a large variety of chemicals the most favorable results were obtained by the use of borax (Sodium borate), and calcined colemanite (Calcium borate). Both substances showed a marked action on fly larvae but had no permanent action on bacteria; they had a decidedly active toxic action on fly eggs, preventing hatching after contact.

These substances have the advantage of being cheap, comparatively non-toxic, non-inflammable, and easy to pack and ship because they are in powder form. Borax retails usually at ten cents a pound but in large quantities (a hundred pounds or more) may be purchased at five to six cents a pound. Calcined colemanite in large quantities sells at two cents a pound.

Recent trials indicate that both have a minimal effective action on fly eggs and larvae when used in the proportion of three quarters of a pound to eight bushels of manure. In these proportions, the cost of fly prevention would be less than one cent a day for each horse.

In practical use, either powder is to be sprinkled over the manure though a fine sieve (flour sieve) immediately after it is removed. Two to three gallons of water should be sprayed or sprinkled over the manure after the powder is applied.

Flies lay eggs in fresh manure by preference and for effective work, the applications should be made as directed. In addition, especial attention should be given to the edges of the manure piles. It has been noted in studying larvae that they congregate at the outer edges, sometimes migrating an inch or more into the earth.

These powders should also be applied to floors and crevices in barns, stables, pig pens, etc., to street sweepings, and to any fermentable or putrescible material in which flies may breed.

Hellebore. If the borates in quantities above that given as minimal in effectiveness are used, an injurious action on certain plants may occur. This may be a serious matter when large quantities of manure are used, as by market gardeners, particularly if the borax be applied carelessly, as easily happens. Consequently studies were made of the value of vegetable substances in fly destruction and it was found that hellebore (Veratrum viride) is an excellent destructive agent with no discoverable deleterious action on the fertilizing value of manures or to plant life. This agent is to be used in the proportion of half a pound of powdered hellebore to ten gallons of water, this quantity to be applied to each eight bushels of manure. The cost is considerably less than one cent (in actual trials, 0.69 cents) to the bushel of manure. The use of the somewhat more expensive hellebore has therefore been recommended for the treatment of manure. Borax may be used for all other refuse in which flies deposit their eggs.

It has been sufficiently proven that the common or house-fly is a general and common carrier of disease-producing bacteria: that these are, for the most part, bacteria commonly found in sewage; and that in everyday, domestic life, it is the infant which suffers most. If the fly is present even in small numbers it means domestic insanitation, either on the immediate premises or on those of a neighbor. It is the duty of every individual to guard as far as possible against the occurrence of flies upon his own premises. It is his duty in the community as a whole, through the local health officers, to spend effort and money in the elimination of this source of danger.

PENNSYLVANIA HEALTH BULLETINS

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bath Tubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March, 1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April, 1915,	Diphtheria and Diphtheria Antitoxin.
69.	May, 1915,	Flies as a Factor in Infant Mortality.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 70. HARRISBURG, PA. June, 1915.

PENNSYLVANIA HEALTH LEGISLATION OF 1915.

1. Authorizing certain cities of the third class to extend water pipes beyond the city limits. Page 2.
2. Enabling townships of the first class to provide a system of water supplies by contracting with other municipalities. Page 2.
3. Amending section 6 of the Act of June 12, 1913. Page 5.
4. Conferring authority upon county commissioners to appropriate money for the maintenance of indigent residents who are patients in hospitals or sanatoria. Page 7.
5. Authorizing boroughs to collect an annual rental from property abutting on sewers. Page 8.
6. Amending the Anatomical Board Act of June 13, 1873. Page 9.
7. Amending the Mattress Act of May 1, 1913. Page 13.
8. Authorizing the Commissioner of Health to accept private donations for the purpose of erecting Union Chapels at Tuberculosis Sanatoria. Page 17.
9. State Quarantine Law. Page 17.
10. Amending the marriage license law of June 13, 1885, as amended by the Act of March 24, 1905. Page 27.
11. Regulating sanitary conditions in hotels, restaurants, etc. Page 30.
12. Prohibiting the construction of mausoleums in cities of the second class. Page 32.
13. Providing for the collection of expense of maintenance of inmates of hospitals and sanatoria. Page 32.
14. Amending Act of May 13, 1905, relating to the registration of nurses. Page 34.
15. Relating to the indebtedness of municipalities. Page 37.
16. Providing for the construction, etc., of county sewers and disposal plants. Page 38.
17. Providing for the registration of births, deaths, marriages and diseases. Page 47.
18. Additional rules and regulations. Page 61.

AN ACT

Authorizing cities of the third class wherein the title to the water-works therein located is in the city, to extend their pipes and improvements beyond the city limits, and supply water to persons, corporations, and municipalities within the county, and regulating the supply of water.

Cities of the third class.

Water-works.

Extension of pipes beyond city limits.

Section 1. Be it enacted, &c., That all cities of the third class wherein the title to the water-works therein located is in the name of the city, shall have the right, and are hereby authorized and empowered, to extend the water-pipes and improvements of any such water-works, beyond the bounds of the cities wherein they are located, into the county and municipalities of the county in the vicinity of such cities; and to furnish water to any and all corporations, institutions, persons, and municipalities in the counties in which said cities are located, under and in pursuance of the laws, rules, and regulations now existing or to be hereafter enacted governing cities of the third class. This section does not authorize a city of the third class to extend water-pipes or supply water in territory, outside the boundaries of such cities, which territory is being supplied with water by a private company.

Exception.

Repeal.

Section 2. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 31st day of March, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Enabling townships of the first class to provide, regulate, and protect a system of water-supply, and to contract with certain adjoining municipalities for such water; and granting and regulating the right of eminent domain, and the right to occupy highways.

Townships of the first class.

Water-supply.

Section 1. Be it enacted, &c., That any township of the first class is empowered to contract with any adjoining municipality, owning a waterworks system, for a supply of water for public and private uses, to be delivered into the lines of the township at or near the boundary thereof.

This section does not authorize a contract between a township of the first class and a municipality for the supply of water in territory being supplied by a private company.

Section 2. A township making such contract may, by ordinance, provide and regulate and protect a system of distribution of the water. After a certified copy of the plans and surveys for such system, with a description of the sources from which it is proposed to derive the supply, are filed in the Department of Health, and a written permit for the construction of such system obtained from the Commissioner of Health, in accordance with the provisions of the act of April twenty-second, one thousand nine hundred and five, entitled "An act to preserve the purity of the waters of the State for the protection of the public health."

Ordinance.

Plans, etc.

Section 3. In providing for regulating and protecting and extending its system of distribution of water, the township may occupy public highways; and may take, injure, or destroy private property, compensation for which taking, injury, or destruction to be made or secured as hereinafter in this act provided. No highway under the jurisdiction of the State Highway Department shall be occupied until a permit therefor has been obtained from the State Highway Department. Property belonging to or used as a cemetery, or a place of public worship, or any public or parochial school, or other educational or charitable institution or seminary, shall not be taken, injured, or destroyed by virtue of this act.

Occupation of highways.

Eminent domain

Exception.

Section 4. If the compensation and damages arising from such taking, injury, or destruction of private property cannot be agreed upon, the township may tender its bond as security to the party claiming or entitled to any damages, or to the attorney or agent of any absent person, or to the agent or other officer of a corporation, or to the guardian or committee of any person under legal incapacity. The condition of the bond shall be, that the township shall pay, or cause to be paid, such amount of damages as the party shall be entitled to receive, after the same shall have been agreed upon or assessed in the manner provided in this act. In case the party or parties claiming damages refuse or do not accept the security so tendered, the township shall then give the party, his or their agent, attorney, guardian or committee, at least ten days' written notice of the time when the same will be presented to the court of common pleas for approval. Thereafter the township may present its bond to the court, and when approved the said bond shall be filed in court for the benefit of those interested; and recovery may be had thereon, for the amount of damages finally determined, if the same be not paid, or cannot be made by execution on the judgment in the issue formed to try the question; and upon the approval of

Bond.

Conditions.

Refusal, etc.

Notice.

Filing of bond.

Possession.

said security the township may enter into possession, take, hold, use, and enjoy said land, for the purpose aforesaid, forever.

When parties cannot agree.

Board of view.

Notice of meeting.

Oath of viewers.

Hearing.

Damages.

Report.

Plan.

Section 5. In case the compensation or damages accruing from such taking, injury, or destruction has not been agreed upon by the parties in interest, the court of common pleas, or any law judge thereof in vacation, on application thereto by the township or any person interested in such property, shall appoint three members of the board of viewers of the county as a board of view; and appoint a time, not less than ten nor more than twenty days thereafter, when the board of view shall meet upon the property and view the same and the premises affected thereby. The board of view shall give at least five days' personal notice of the time of their first meeting, upon the owners, agents, attorneys or representatives thereof, if the same reside within the county; otherwise, by handbills posted upon the premises, or by such other notice as the court shall direct. The board of view, having been duly sworn or affirmed faithfully, justly and impartially to decide and true report to make concerning all matters and things submitted to them in relation to which they are authorized to inquire under the provisions of this act; and having viewed the premises or examined the property, shall hear all parties interested and their witnesses; and, having due regard to the advantages and disadvantages, shall estimate and determine the damages for the property taken, used, or appropriated, and to whom the same are payable. They shall give at least ten days' notice thereof, in the manner herein provided, to all parties interested, of the time and place when the board of view will meet and exhibit said report and hear any exceptions thereto. After making whatever changes are deemed necessary and proper, the board of view shall make report to the court, showing the damages, if any are allowed; and file therewith a plan showing the properties taken, injured, or destroyed, and the names of the persons to whom such damages are payable.

Exceptions.

Appeal.

Jury trial.

Section 6. When the report of the board of view, or any two of them, is filed in court, any party may, within thirty days thereafter, file exceptions to the same; and the court may confirm the report, or modify, change or otherwise correct it, or refer it back to the same or new viewers, with like power as to their report. Or within thirty days from the filing of any report in court, any party whose property is so taken, used, or appropriated may appeal to the court of common pleas of the county, and demand a trial by jury. Any party interested therein may, within thirty days after final decree, have an appeal to the Superior or the Supreme Court. If no exceptions are filed or no demand made for trial by jury within the said thirty days after the filing of said report, the same shall become absolute. The court may order what notices shall be given in connection with any part of said proceedings, and may make all such orders as it may deem requisite.

Notices.

Orders.

Section 7. The board of view provided for in this act may be appointed before or at any time after the entry, taking, or appropriation of any property to be used for the purpose aforesaid. They shall have power to administer oaths, and adjourn their hearings from day to day as they may find necessary.

Powers of board.

Section 8. The costs of the board of view, and all court costs incurred in the proceedings, including advertising and printing and posting notices, shall be defrayed by the township.

Costs.

Section 9. All damages, when determined, shall be assessed against and paid by the township so taking, injuring, or destroying the property as aforesaid.

Damages.

Approved—The 9th day of April, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To amend an act, approved the twelfth day of June, one thousand nine hundred thirteen, entitled "An act providing for the establishment and maintenance of boards of health in boroughs and townships of the first class, and defining their powers and duties; providing for the appointment of members of such boards of health by the president of the borough councils, or by the chairman of the board of commissioners of such townships; providing for the election of a secretary and a health officer; providing that the Commissioner of Health may take charge of the administration of health laws in any borough or township of the first class, when conditions therein, in his opinion, constitute a menace to the lives or health of the people living outside the corporate limits of such borough or township of the first class, or when it may be known to him that such borough or township of the first class is without an existing or efficient board of health; and providing the manner in which the expenses of boards of health or of the Commissioner of Health, incurred in administering health laws in any borough or township of the first class, shall be paid."

Section 1. Be it enacted, &c., That the sixth section of an act, approved the twelfth day of June, one thousand nine hundred thirteen, entitled "An act providing for the establishment and maintenance of boards of health in boroughs and townships of the first class, and defining their powers and duties; providing for the appointment of members of such boards of health by the president of the borough councils or by the chairman of the board of commissioners of such townships; providing for the election of a secretary and a health officer; providing that the Commissioner of

Boards of Health

Boroughs and townships of the first class.

Health may take charge of the administration of health laws in any borough or township of the first class, when conditions therein, in his opinion, constitute a menace to the lives or health of the people living outside the corporate limits of such borough or township of the first class, or when it may be known to him that such borough or township of the first class is without an existing or efficient board of health; and providing the manner in which the expenses of boards of health or of the Commissioner of Health, incurred in administering health laws in any borough or township of the first class, shall be paid," which reads as follows:—

Section 6, act of June 12, 1913, cited for amendment.

"Section 6. The said board of health shall have the power and it shall be their duty, to enforce the laws of the Commonwealth, the regulations of the State Department of Health, and such further regulations as the board may see fit to adopt for the control of communicable disease and the prevention of infections therefrom. They shall also have power, with the consent of councils, in case of a prevalence, or apprehended prevalence, of any contagious or infectious diseases in their borough or township, to establish one or more emergency hospitals and to make provisions and regulations for the management of the same," is hereby amended to read as follows:—

Powers of the board.

Section 6. The said board of health shall have the power, and it shall be their duty, to enforce the laws of the Commonwealth, the regulations of the State Department of Health, and to make and enforce such additional rules and regulations to prevent the introduction and spread of infectious or contagious diseases, by the regulation of intercourse with infected places, by the separation of infected persons. and persons who shall have been exposed to any infectious or contagious disease, and by abating and removing all nuisances which they shall deem prejudicial to the public health; to mark infected houses or places, to prescribe rules for the construction and maintenance of house-drains, wash-pipes, soil-pipes and cesspools; and to make all such other rules and regulations as they shall deem necessary for the preservation of the public health. They shall also have power, with the consent of councils or township commissioners, in case of a prevalence or apprehended prevalence of any contagious or infectious diseases in their borough or township, to establish one or more emergency hospitals, and to make provisions and regulations for the maintenance and management of the same.

Hospitals.

Rules and regulations.

The board shall also have the power to make, enforce, and cause to be published, all necessary rules and regulations for carrying into effect the powers and functions with which they are invested by law, and the power and authority relating to the public health conferred on the boroughs and townships of the first class. Such rules and regulations, when approved by the borough council and burgess or by the township commissioners, as the case may be, and when advertised in the same manner as other ordinances, shall have the force of ordinances of the borough or township, respectively; and all penalties or punishment prescribed for the violation thereof, as well as the expenses actually and necessarily incurred in carrying such rules and regulations into effect, shall be recoverable, for the use of the borough or township, respectively, in the same manner as penalties for violation of the ordinances of the borough or township, and subject to the like limitations as to the amount thereof.

Penalties.

Approved—The 14th day of April, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Conferring authority upon the commissioners of the counties, respectively, within this Commonwealth, to appropriate money for the maintenance of such indigent residents of the county as may be patients in a hospital or sanatorium, of any district in the county, which has been erected and equipped according to plans and specifications approved by the Department of Health of Pennsylvania.

County commissioners.

Hospital or sanatorium.

Tuberculosis.

Section 1. Be it enacted, &c., That whenever there shall have been established, in any poor district of any county of this Commonwealth, a hospital or sanatorium for the treatment therein of indigent persons suffering from tuberculosis, which said hospital or sanatorium has been erected and equipped in accordance with plans and specifications approved by the Department of Health of the State of Pennsylvania, it shall be lawful for the commissioners of such county, and they are hereby authorized and empowered, to appropriate, out of the funds of such county, to such poor district, so much money as may be necessary for the maintenance of indigent persons, residents of the county, who may be inmates of such hospital or sanatorium and under treatment for tuberculosis.

Maintenance of indigent residents.

Section 2. That such appropriation shall not exceed, for each of such indigent inmates, the sum of ten ($10) dollars per week, payable every three months, at the end of the period.

Limit of appropriation.

Section 3. That the commissioners of each county at all times shall have free access to such hospital or

Right of entry.

sanatoria, for inspection of its management and for ascertainment of the number of indigent persons receiving treatment therein.

APPROVED—The 28th day of April, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Authorizing boroughs to collect an annual rental or assessment from property abutting on sewers constructed at public expense, and providing for the collection thereof.

Boroughs.

Section 1. Be it enacted, &c., That whenever any borough of the Commonwealth of Pennsylvania has heretofore constructed, or shall hereafter construct, any sewer or sewer-system, at public expense, the council of the said borough may provide by ordinance for the collection of an annual rental or charge, for the use of such sewer or sewer-system, from the owners of property served by it. Such annual rental or charge shall be authorized and collected as provided by general ordinances, and when so levied and charged shall be a lien on the properties charged, and the collection thereof shall be made and enforced in the manner borough taxes are now collected.

Collection of annual rental or charge from property abutting on public sewers.

Warrants.

Section 2. The councils of said boroughs shall execute a warrant, or warrants, authorizing the collection of the said annual sewer rentals or charges, to the officer employed by council to collect the same, and the officer collecting the said rentals shall have the authority now vested by law in collection of borough taxes.

Authority of collector.

Rentals shall be a lien.

Section 3. The said annual sewer rentals or charges shall be a lien on the properties charged with the payment thereof, from the date set in the said ordinance, and if not paid after thirty days' notice may be collected by an action in assumpsit, in the name of the borough, against the owner of the property charged, or by distress of personal property on the premises, or by a lien filed in the nature of a tax lien.

Actions for collection.

Limit of levy.

Section 4. The said annual rental, so to be levied and charged as herein provided, shall not exceed the amount expended annually by the said boroughs in the maintenance, repair, alteration, inspection, or other expense in relation thereto, and may include any interest on money expended by the said borough in the construction of the said sewer or sewer-system.

The said annual sum shall be apportioned equitably among the several properties served by the said sewers.

APPROVED—The 11th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Amending and supplementing sections one and two of an act, entitled "An act for the promotion of medical science by the distribution and use of unclaimed human bodies for scientific purposes, through a board created for that purpose, and to prevent unauthorized uses and traffic in human bodies," approved June thirteenth, one thousand eight hundred and eighty-three; by providing that the name of said board of distribution shall be Anatomical Board of the State of Pennsylvania; by extending its provisions to all persons having charge or control over bodies required to be buried at the public expense; by requiring immediate notice of the death of any person required to be buried at the public expense; by requiring notice in all cases; but providing that there shall not be delivered to the board created under the act the bodies of deceased indigent persons, where claimed by relatives within twenty-four hours after death, for interment at the expense of the claimant, or the bodies of honorably discharged soldiers, sailors or marines who have served the United States in any war, or who were in active service in the militia of the State of Pennsylvania under and in pursuance of any of the proclamations issued by the Governor during the Civil War, and not duly mustered into the service of the United States; by repealing the provisions as to deceased indigent travelers; by providing for the burial at the expense of the county of indigent persons unfit for anatomical purposes, upon the certificate of the board or its duly authorized officer or agent that such bodies are unfit for anatomical purposes, or are the bodies of soldiers, sailors or marines required to be buried at the public expense, and that the provisions of this act have been complied with; by providing that no warrants for payment of expenses of burial shall be drawn or paid except upon such certificate; by providing for the burial of bodies rendered unfit for anatomical purposes by the failure to comply with the provisions of this act, at the expense of the person failing to comply with its provisions.

Section 1. Be it enacted, &c., That section one of an act approved the thirteenth day of June, one thousand eight hundred eighty-three, entitled "An act for the promotion of medical science by the distribution and use of unclaimed human bodies for scientific purposes, through a board created for that purpose, and to prevent unauthorized uses and traffic in human bodies," which reads as follows:—

Promotion of medical science.

"Section 1. Be it enacted, &c., That the professors of anatomy, the professors of surgery, the demonstrators of anatomy and the demonstrators of surgery of the medical and dental schools and colleges of this Commonwealth, which are now or may hereafter become incorporated, together with one representative

Section 1, act of June 13, 1883, cited for amendment.

from each of the unincorporated schools of anatomy or practical surgery within this Commonwealth, in which there are from time to time, at the time of the appointment of such representatives, shall be not less than five scholars, shall be and hereby are constituted a board for the distribution and delivery of dead human bodies, hereinafter described, to and among such persons as, under the provisions of this act, are entitled thereto. The professor of anatomy in the University of Pennsylvania, at Philadelphia, shall call a meeting of said board for organization, at a time and place to be fixed by him, within thirty days after the passage of this act. The said board shall have full power to establish rules and regulations for its government, and to appoint and remove proper officers, and shall keep full and complete minutes of its transactions; and records shall also be kept, under its direction, of all bodies received and distributed by said board, and of the persons to whom the same may be distributed; which minutes and records shall be open at all times to the inspection of each member of said board, and of any district attorney of any county within this Commonwealth," is hereby amended to read as follows:—

Board for the distribution of certain dead human bodies.

Section 1. The professors of anatomy, the professors of surgery, the demonstrators of anatomy and the demonstrators of surgery, of the medical and dental schools and colleges of this Commonwealth, which are now or may hereafter become incorporated, together with one representative from each of the unincorporated schools of anatomy or practical surgery within this Commonwealth, in which there are, or, from time to time, at the time of the appointment of such representatives, shall be, not less than five scholars, shall be and hereby are constituted a board for the distribution and delivery of dead human bodies, hereinafter described, to and among such persons as, under the provisions of this act, are entitled thereto. The professor of anatomy in the University of Pennsylvania, at Philadelphia, shall call a meeting of said board for organization, at a time and place to be fixed by him, within thirty days after the passage of this act. The said board shall have full power to establish rules and regulations for its government, and to appoint and remove proper officers, and shall keep full and complete minutes of its transactions; and records shall also be kept, under its direction, of all bodies received and distributed by said board, and of the persons to whom the same may be distributed, which minutes and records shall be open at all times to the inspection of each member of said board and of any district attorney of any county within this Commonwealth. *The name of said board of distribution shall be Anatomical Board of the State of Pennsylvania.*

Organization of the board.

Minutes.

Records.

Anatomical Board of the State of Pennsylvania.

Section 2. Section two of said act, which reads as follows:—

"Section 2. All public officers, agents, and servants, and all officers, agents, and servants of any and every county, city, township, borough, district, and other municipality, and of any and every almshouse, prison, morgue, hospital, or other public institution having charge or control over dead human bodies, required to be buried at the public expense, are hereby required to notify the said board of distribution, or such person or persons as may from time to time be designated by said board or its duly authorized officer or agent, whenever any such body or bodies come to his or their possession, charge, or control, and shall, without fee or reward, deliver such body or bodies, and permit and suffer the said board and its agents, and the physicians and surgeons from time to time designated by them, who may comply with the provisions of this act, to take and remove all such bodies to be used within this State for the advancement of medical science; but no such notice need be given, nor shall any such body be delivered, if any person claiming to be, and satisfying the authorities in charge of said body that he or she is of kindred or is related by marriage to the deceased, shall claim the said body for burial, but it shall be surrendered for interment; nor shall the notice be given or body delivered if such deceased person was a traveler, who died suddenly, in which case the said body shall be buried," is hereby amended to read as follows:—

Section 2, act of June 13, 1883, cited for amendment.

Section 2. All public officers, agents, and servants, and all officers, agents, and servants of any and every county, city, township, borough, district, and other municipality, and of any and every almshouse, prison, morgue, hospital, *or other municipality* or other public institution, having charge or control over dead human bodies, required to be buried at the public expense, are hereby required to notify the said board of distribution, or such person or persons as may, from time to time, be designated by said board or its duly authorized officer or agent, whenever any such body or bodies come to his or their possession, charge, or control; and shall, without fee or reward, deliver such body or bodies, and permit and suffer the said board and its agents, and the physicians and surgeons from time to time designated by them, who may comply with the provisions of this act, to take and remove all such bodies to be used within the State for the advancement of medical science; but no such notice need be given, nor shall any such body be delivered, if any relative by blood or marriage shall claim the said body for burial *within a reasonable time, which shall not be less than forty-eight hours after death, but the body shall be surrendered to said claimant for interment; and no*

Officials having charge of bodies to notify the board.

Notice.

Delivery.

Removal.

Claimed by relative.

Friend.

Fraternal society, etc.

Travelers.

Veterans.

When body is not claimed by Board.

Burial.

Warrants.

Expenses.

Certificate.

Failure to deliver body.

Expenses of burial.

such notice shall be given, nor shall any such body be delivered, if any friend or any representative of a fraternal society of which deceased was a member, or a representative of any charitable organization, shall claim the said body for burial within a reasonable time, which shall not be limited to less than forty-eight hours; said burial to be at the expense of such friend, fraternal society, or charitable organization; nor shall the notice be given or body delivered if said person was a traveler, who died suddenly, or was an honorably discharged soldier, sailor, or marine of the United States, or of the militia of the State of Pennsylvania; in which case said body shall be buried in accordance with the provisions of existing laws. In case of the death of any person whose body is required to be buried at the public expense, and the duly authorized officer or agent of the board deems such body unfit for anatomical purposes, he shall notify in writing the poor directors, overseers, or, in counties in which there are no poor directors or overseers, then the county commissioners of the county where such person died; who shall direct some person to take charge of the body of such deceased indigent person, and cause it to be buried; and draw warrants upon the treasurer of their county for the payment of such expenses, not exceeding however the sum of thirty-five dollars on each body buried in accordance with the provisions of this act. Such warrants shall be made payable to the persons so authorized and directed, who shall have buried the bodies for which the warrants are to be drawn. No warrants for the payment of the expenses of the burial of any person, whose body is required to be buried at the public expense, shall be drawn or paid except upon the certificate of the duly authorized officer or agent of the board, to the effect that such body is unfit for anatomical purposes, or that the body is that of a soldier, sailor, or marine required to be buried at the public expense, and that the provisions of this act have been complied with. Wherever, through the failure of any person to deliver the body of a deceased indigent as required by this act, such body shall become unfit for anatomical purposes, and is so certified by the duly authorized officer or agent of said board of distribution, such body shall be buried in accordance with the provisions of this act; and the person so failing to deliver such body shall pay to the county treasurer the expense so incurred, and, upon the refusal or failure of such person, on demand, to pay such expense, the poor directors or overseers, or, in counties in which there are no poor directors or overseers, then the county commissioners, shall bring suit to recover the same; to be recovered as debts of like amount are by law collectible.

Repeal.

Section 3. The said act is hereby amended by adding the following to be known as section nine:—

Act of April 20, 1911, repealed.

Section 9. An act entitled "An act providing for the burial of indigent persons, whose bodies are unclaimed and are unfit for anatomical purposes," approved the twentieth day of April, one thousand nine hundred and eleven, and "An act to amend an act, approved the twentieth day of April, one thousand nine hundred and eleven, entitled 'An act providing for the burial of indigent persons, whose bodies are unclaimed and are unfit for anatomical purposes,' " approved the twenty-third day of May, one thousand nine hundred and thirteen, and all other acts and parts of acts inconsistent herewith are hereby repealed.

Act of May 23, 1913, repealed.

Repeal.

Approved—The 14th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To amend sections two, three, and six of an act, entitled "An act defining mattresses; regulating the making, remaking, and sale thereof; prohibiting the use of unsanitary and unhealthy materials therein; requiring that the materials used shall be accurately described, and prescribing the manner in which mattresses shall be labelled; providing for the enforcement of the provisions of this act; making certain acts criminal, and punishing the same; imposing certain duties upon the Commissioner of Health and the Chief Factory Inspector; and repealing legislation inconsistent with this act," approved the first day of May, Anno Domini one thousand nine hundred thirteen, so as to apply to leasing as well as sale; require second-hand mattresses to be sterilized and labelled; and more specifically regulate the making, remaking, renovating, selling, and leasing of mattresses.

Mattresses.

Section 1. Be it enacted, &c., That section two of an act, entitled "An act defining mattresses; regulating the making, remaking, and sale thereof; prohibiting the use of unsanitary and unhealthy materials therein; requiring that the materials used shall be accurately described, and prescribing the manner in which mattresses shall be labelled; providing for the enforcement of the provisions of this act; making certain acts criminal, and punishing the same; imposing certain duties upon the Commissioner of Health and the Chief Factory Inspector; and repealing legislation inconsistent with this act," approved the first day of May, Anno Domini one thousand nine hundred thirteen, which reads as follows:—

Section 2, act of May 1, 1913, cited for amendment.

"Section 2. (1) No person or corporation, by himself or by his agents, servants, or employes, shall employ or use in the making, remaking, or renovating of any mattress:

"(a) Any material of any kind that has been used in, or has formed a part of, any mattress used in or about *any public or private hospital, or institution for* *the treatment of persons suffering from disease, or for or about* any person having any infectious or contagious disease;

"(b) Any material known as 'shoddy,' and made in whole or in part from old or worn clothing, carpets, or other fabric, or material previously used, or any other fabric or material from which shoddy is constructed;

"(c) Any material, not otherwise prohibited by this act, *of which prior use has been made, unless the said material* has been thoroughly sterilized and disinfected by a reasonable process approved by the Commissioner of Health of this Commonwealth.

"(2) No person or corporation, by himself or by his agents, servants, or employes, shall sell, offer to sell, deliver or consign, or have in his possession with intent to sell, deliver, or consign, any mattress made, remade, or renovated in violation of subsection one of this section," be, and the same is hereby, amended to read as follows:—

Making and renovation.

Section 2. (1) No person or corporation, by himself or his agents, servants, or employes, shall employ or use in the making, remaking, or renovating of any mattress:

Prohibitions.

(a) Any material of any kind that has been used in, or has formed a part of, any mattress used for or about any person having any infectious or contagious disease;

Shoddy.

(b) Any material known as "shoddy," and made in whole or in part from old or worn clothing, carpets or other fabric, or material previously used, or any other fabric or material from which shoddy is constructed;

Sterilization, etc.

(c) Any material, not otherwise prohibited by this act, of which prior use has been made, unless the said material has been thoroughly sterilized and disinfected by a reasonable process approved by the Commissioner of Health of this Commonwealth.

Unlawful sale, lease, possession, etc.

(2) No person or corporation, by himself or by his agents, servants, or employes, shall sell, *lease,* offer to sell, *or lease* or deliver, or consign *in sale or lease,* or have in his possession with intent to sell, *lease,* deliver, or consign *in sale or lease:*

Prohibitions.

(a) Any mattress that has been used for or about any person having any infectious or contagious disease;

(b) Any mattress made, remade, or renovated in violation of subsection one of this section;

Sterilization, etc.

(c) Any mattress, not otherwise prohibited by this act, of which prior use has been made, unless since last used it has been thoroughly sterilized and disinfected by a reasonable process approved by the Commissioner of Health of this Commonwealth.

Section 2. That section three of said act, which reads as follows:—

"Section 3. No person or corporation, by himself or his agents, servants or employes, shall, directly or indirectly, at wholesale or retail, or otherwise, sell, offer for sale, deliver or consign, or have in his possession with intent to sell, *deliver,* or consign, any mattress that shall not have plainly and indelibly written or printed thereon, or upon a muslin or linen tag securely sewed to the covering thereof, a statement in the English language setting forth *the kind or kinds of* materials used in filling the said mattress, and whether the same are, in whole or in part, new or old, *or second-hand,* and the name and address of the manufacturer or vendor *thereof, or both,*" be and the same is hereby amended to read as follows:—

Section 3, act of May 1, 1913, cited for amendment.

Section 3. (1) No person or corporation, by himself or by his agents, servants, or employes, shall, directly or indirectly, at wholesale or retail, or otherwise, sell, *lease,* offer to sell *or lease, or consign in sale or lease,* or have in their possession with intent to sell or lease, or consign in sale or lease, any mattress that shall not have plainly and indelibly written or printed thereon, or upon a *plain* muslin or linen tag securely sewed to the covering thereof, a statement in the English language setting forth:

Descriptive statement.

(a) The materials used in filling said mattress, and whether the same are, in whole or in part, new or old;

Information

(b) The name and address of the maker, vendor, *or successive vendors:*

(c) And, upon a mattress of which prior use has been made, the words "Second-Hand," together with the date of sterilization and disinfection, and the name and address of the person or corporation sterilizing or disinfecting the same.

No additional information shall be contained in said statement.

(2) No person or corporation, by himself or by his agents, servants, or employes, shall place upon any mattress the statements required by subsection one (a) and (b) of this section unless said mattress has been made, remade, or renovated by him in accordance with this act; and no person or corporation, by himself or his agents, servants, or employes, shall place upon any mattress the statements required by subsection one (c) of this section unless the said mattress has been sterilized and disinfected by him in accordance with this act: Provided, That the vendor, in either case, shall insert his name and address in the statement.

Unlawful placing of statement.

Proviso.

Section 3. That section six of said act, which reads as follows:—

"Section 6. The statement required under section three of this act shall be the following form:

Section 6, act of May 1, 1913, cited for amendment.

Materials Used in Filling.

....

....

Made by ....

Address ....

Vendor ....

Address ....

This article is made in compliance with the act of Assembly of Pennsylvania, approved the .... day of .... one thousand nine hundred and thirteen," be, and the same is hereby, amended to read as follows:—

Section 6. The statement required under section three of this act shall be *not less than three by four and a half inches in size,* and in form shall be as follows:

Official Statement.

Form of official statement.

Materials used in filling ....

....

....

Made by ....

Address ....

Vendor ....

Address ....

This article is made in compliance with the act of Assembly of Pennsylvania approved the first day of May, one thousand nine hundred thirteen, as amended.

....

....

....

Approved—The 14th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Authorizing the Commissioner of Health to accept a private donation or private donations for the purpose of erecting union chapels at tuberculosis sanatoria number two and number three, located at Cresson and Hamburg in this Commonwealth, and further authorizing said Commissioner of Health, after receiving such donation or donations for such purpose, to erect or cause to be erected on the said sanatorium properties, or either of them, a suitable building or buildings for such purpose, under plans and specifications to be approved by the Governor of this Commonwealth and the said Commissioner of Health.

Commissioner of Health.

Section 1. Be it enacted, &c., That the Commissioner of Health of this Commonwealth be, and he is hereby, authorized and empowered to accept a private donation or private donations for the purpose of erecting union chapels at tuberculosis sanatoria number two and number three, situated at Cresson, Cambria County, and at Hamburg, Berks County, Pennsylvania, or either of them.

Donations for erection of chapels at sanatoria.

Plans and specifications.

Section 2. The said Commissioner of Health is hereby further authorized and empowered, after receiving sufficient donation or donations for the purpose set forth in section one of this act, to have plans and specifications prepared for a building to be used as a union chapel, which said plans and specifications shall be submitted to the Governor of this Commonwealth for his consideration and approval; and, upon the approval of plans and specifications for such building by the Governor of this Commonwealth and the Commissioner of Health, to have such a building or buildings erected under said plans and specifications, at a suitable place or places on the property purchased and owned by the Commonwealth for sanatorium purposes at Cresson and Hamburg, or at either place: Provided, however, That the entire cost of the construction and equipment of said chapel or chapels shall be covered by the said donation or donations, and no plans shall be prepared or building done until such donation or donations have been received by the Commissioner of Health.

Cresson and Hamburg.

Approved—The 28th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To safeguard human life and health throughout the Commonwealth, by providing for the reporting, quarantining, and control of certain communicable diseases, and for the prevention of infection therefrom, and prescribing penalties for violations of the act.

Duty of physicians.

Section 1. Be it enacted, &c., That every physician, practicing in any portion of this Commonwealth, who shall treat or examine any person suffering from or af-

Diseases which must be reported.

flicted with actinomycosis, anthrax, bubonic plague, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), chicken-pox, Asiatic cholera, diphtheria (diphtheritic croup, membranous croup, putrid sore thoat), epidemic dysentery (bacillary or amebic dysentery), erysipelas, German measles, glanders (farcy), rabies (hydrophobia), leprosy, malarial fever, measles, mumps, pneumonia (true), puerperal fever, relapsing fever, scarlet fever (scarlatina, scarlet rash), smallpox (variola, varioloid), tetanus, trachoma, trichiniasis, tuberculosis in any form, typhoid fever, para typhoid fever, typhus fever, whooping-cough, yellow fever, anterior poliomyelitis, impetigo contagiosa, pellagra, scabies, or uncinariasis, shall, if said case shall be located in a township of the first class, a borough, or a city, forthwith make a report in writing to the health authorities of said township, city, or borough; and, if said case shall be located in a township of the second class, or a city, borough, or township of the first class, not having a board of health or body acting as such, to the health officer appointed by the State Department of Health for such district; upon blanks supplied for that purpose, in which report he shall, over his or her own signature, state the name of the disease, and the name, age, sex, color, nativity, and occupation, if any, of the person suffering therefrom, together with the street and house number of the premises in which said person may be located, or otherwise sufficiently designate the same, the date of the onset of the disease, the name and occupation of the householder in whose family the disease may have occurred, the number of children in said household attending school and the name or names of the school or schools so attended, together with such information relating to said case as may be required by said health authorities and the State Department of Health.

Details of the report.

Duty of health officers.

Section 2. Upon receipt by the health authorities of any township of the first class, borough, or city, or by the health officer of the State Department of Health, of a report of the existence of a case of anthrax, bubonic plague, cerebrospinal meningitis (epidemic) (cerebrospinal fever, spotted fever), chicken-pox, Asiatic cholera, diphtheria (diphtheritic croup, membranous croup, putrid sore throat), German measles, glanders (farcy), leprosy, malarial fever, measles, mumps, relapsing fever, scarlet fever, (scarlatina, scarlet rash), smallpox (variola, varioloid), typhoid fever, para typhoid fever, typhus fever, whooping-cough, or yellow fever, the said health authorities, or the health officer of the State Department of Health, as the case may be, shall quarantine or cause to be quarantined the premises in which such disease exists, and any person or persons who has or have been exposed thereto, in the manner prescribed by the rules and reg-

Quarantine.

ulations both of said health authorities and the State Department of Health; and shall post or cause to be posted in a conspicuous place or places, upon the premises in which said disease may be located, a placard or placards upon which shall be printed in conspicuous letters the name of the disease from which the person or persons in said house or premises is or are suffering, with the warning that the said premises are quarantined, that no person or persons other than the attending physician and trained nurse shall enter or leave the said premises, except by permission of the health authorities, and setting forth the penalties prescribed by this act for violations of quarantine: Provided, That variola or varioloid shall be placarded as "smallpox," and that diphtheritic croup, membranous croup, and putrid sore throat shall be placarded as "diphtheria," that scarlatina and scarlet rash shall be placarded as "scarlet fever," and that para typhoid fever shall be placarded as "typhoid fever:" Provided further, That, in addition to the placarding aforesaid, said health authorities may, for the purpose of enforcing quarantine regulations, place a guard or guards over said house or premises.

Posting of premises.

Proviso.

Proviso.

Guarding of premises.

Section 3. That the said placard or placards shall remain in place until the expiration of the quarantine period fixed by the health authorities, and the recovery, death, or removal of the person or persons affected; and shall only be removed by the health officer, at which time he shall disinfect the premises, except for typhoid fever and para typhoid fever, in accordance with the rules and regulations of the health authorities and the State Department of Health regarding the destruction and disinfection of infected bedding, clothing, and other articles which have been exposed to infection, and the disinfection of rooms, premises, and inmates.

Duration of placarding.

Disinfection.

Section 4. The quarantine period for anthrax, bubonic plague, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), Asiatic cholera, typhus fever, yellow fever, relapsing fever, leprosy, and whooping-cough shall be until the recovery, death, or removal of the patient so suffering, and shall be determined in accordance with the rules and regulations of the health authorities. The quarantine period for smallpox (variola, varioloid), and scarlet fever (scarlatina, scarlet rash), shall be a minimum period of thirty days, or until such time thereafter as the last person in the premises so suffering shall have fully recovered, or until death or removal. The quarantine period for diphtheria (diphtheritic croup, membranous croup, putrid sore throat), shall be a minimum period of twenty-one days, or until complete recovery or the death or removal of the patient: Provided, That if anti-

Quarantine periods.

Proviso.

If antitoxin has been used.

Cultures.

toxin has been used for curative purposes for the patient, and for the immunizing of all of the inmates of the premises, and two negative bacteriological cultures have been secured from the diseased area of each patient on the premises, for two successive days, the minimum period of quarantine may be fourteen days. The quarantine period for measles, German measles, chicken-pox, and mumps shall be for a minimum period of sixteen days, or until the recovery of the last person on the premises so suffering, or until complete recovery or the death or removal of the patient.

Exclusion from places of amusement, public gatherings, places of business, churches, schools, etc.

Duty of teachers and school officers.

Period of exclusion.

Section 5. No child or other person suffering from anthrax, bubonic plague, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), Asiatic cholera, smallpox (variola, varioloid), typhus fever, yellow fever, relapsing fever, leprosy, diphtheria (diphtheritic croup, membranous croup, putrid sore throat), measles, German measles, glanders, (farcy), chicken-pox, mumps, or whooping-cough shall be permitted to attend any place of amusement, or any church, or any other public gathering, or to be exposed on any public street, or in any store, shop, factory, or other place of business, or be permitted to attend any public, private, parochial, Sunday, or other school; and the teachers of public schools, and the principals, superintendents, teachers, or other persons in charge of private, parochial, Sunday, or other similar schools, are hereby required to exclude any of such persons from said schools; such exclusion to continue until the case has recovered, the quarantine lifted, and the premises thoroughly disinfected.

Scarlet fever.

Exclusion from school.

Duty of teachers and officers.

Period of exclusion.

Section 6. No child or other person suffering from scarlet fever (scarlatina, scarlet rash) shall be permitted to attend any place of amusement, or any church, or other public gathering, or to be exposed on any public street, or in any store, shop, factory, or other place of business, or be permitted to attend any public, private, parochial, Sunday, or other school; and the teachers of public schools, and the principals, superintendents, teachers, or other persons in charge of private. parochial, Sunday, or other schools, are hereby required to exclude any and all such persons and children from said school; such exclusion to continue for a period of ten days following the removal of quarantine and a thorough disinfection of the premises, subject to a certificate of complete recovery furnished to the health authorities by the attending physician.

Residents of premises.

Section 7. No child or other person residing in the same premises with any person suffering from anthrax, bubonic plague, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), Asiatic cholera, smallpox (variola, varioloid), typhus fever, yellow fever, scarlet fever (scarlatina, scarlet rash), relapsing fever, leprosy, diphtheria (diphtheritic croup, membranous croup, putrid sore throat), measles, German measles, chicken-pox, or mumps, shall be permitted to attend any place of amusement, or any church, or other public gathering, or to be exposed, except by permission of the health authorities, on any public street or in any store, shop, factory, or other place of business, or be permitted to attend any public, private, parochial, Sunday, or other schools; and the teachers of public schools, and the principals, superintendents, teachers, or other persons in charge of private, parochial, Sunday, or other similar schools, are hereby required to exclude any and all such persons from said schools; such exclusion to continue until quarantine is lifted and the premises thoroughly disinfected.

Duty of teachers and officers.

Exclusion.

Section 8. Any child or person residing on the same premises with any person suffering from anthrax, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), or typhus fever may be allowed, after taking a disinfecting bath and putting on disinfected clothing, to remove from the said premises and take up his or her residence on other premises, and may after such removal be admitted into any of the said schools; and any child or person residing on the same premises with any one suffering from diphtheria (diphtheritic croup, menbranous croup, putrid sore throat), may be allowed, after taking a disinfecting bath and putting on disinfected clothing, and after antitoxin has been administered for immunizing purposes, to remove from the said premises, and take up his or her residence on other premises occupied only by adults; and may, after five days from said removal, be admitted into any of the said schools; and any child or person residing on the same premises with any child suffering from scarlet fever (scarlatina. scarlet rash), measles, German measles, mumps, or chicken-pox, may be allowed, after taking a disinfecting bath and putting on disinfected clothing, to remove from the said premises, and take up his or her residence on other premises occupied only by adults, or by children who are immune to the disease (scarlet fever, scarlatina, scarlet rash, measles, German measles, mumps, or chicken-pox), existing on the said premises from which the said child or person has removed, such immunity being shown by the official health records, and may, fourteen days after such removal, be admitted to any of the said schools: Provided, That if the child or person residing on the same premises with any person suffering from any of the said diseases (scarlet fever, scarlatina, scarlet rash, measles, German measles, mumps, or chicken-pox), and removing therefrom as above provided, is himself or herself immune from the disease existing on the said premises, by virtue of a former attack, this fact being shown by the official health records or by other evidence satisfactory to the health

Disinfecting bath, etc.

Removal.

Bath, etc.

Use of antitoxin

Admission to school.

Removal.

Immunes.

Proviso.

authorities, such immune child or person may, on the day following such removal, be admitted to any of the said schools; and any child or person residing on the same premises with any person suffering from relapsing fever may be allowed, after taking a disinfecting bath and putting on disinfected clothing, to remove from the said premises, and take up his or her residence on other premises, and may, after ten days from such removal, be admitted to any of the said schools.

Admission to school.

Duty of teachers, etc.

Section 9. That every teacher, principal, superintendent, or other person or persons in charge of any public, private, parochial, Sunday, or other school, having in any such school any child or person showing an unusual rash or skin eruption, or complaining of soreness in the throat, or having symptoms of whooping-cough, or any disease of the eye, shall immediately exclude such child or other person from the schools, pending the action of the health authorities, and shall report such fact to the health authorities, and shall report such fact to the health officer of the city, borough, or township, giving the name and residence of such child or other person.

Symptoms of disease.

Exclusion.

Reports.

Section 10. No child or other person, excluded from any school by the provisions of this act, shall be readmitted thereto unless he or she, or some person on his or her behalf, shall furnish to the principal, superintendent, or teacher, or other person in charge of said school, a certificate setting forth that the conditions for such readmission prescribed by this act have been complied with; which certificate shall be signed by a person to be designated for that purpose, in cities, boroughs, and townships of the first class, by the health authorities thereof, exclusively; and in townships of the second class, and cities, boroughs, and townships of the first class, not having boards of health or bodies acting as such, by the State Department of Health; and the registry of all public, private, parochial, Sunday, and other schools shall exhibit the names and residences of all children and persons excluded therefrom or readmitted thereto, agreeably to the provisions of this or any other act of Assembly; and said register shall be open at all times to the inspection of the city, borough, or township authorities and the State Department of Health, and their respective officers and agents.

Readmission to school.

Certificate.

Registration of pupils and persons.

Inspection of register.

Section 11. Blanks whereon to make the reports and certificates required by this act shall be supplied, in cities, boroughs, and townships of the first class, by the health authorities thereof, respectively; and in townships of the second class, and in cities, boroughs, and townships of the first class, not having boards of health or bodies acting as such, by the State Department of Health.

Blank reports, etc.

Section 12. It shall be the duty of the health authorities of cities, boroughs, and townships of the first class, respectively, to furnish daily, by mail or otherwise, to principals, superintendents, teachers, and other persons in charge of public, private, parochial, Sunday, and other schools, a printed or written bulletin containing the name, location, and disease of all persons suffering from any of the diseases mentioned in sections five and six of this act, upon receipt by them of reports of such cases from physicians, as required by section one of this act; and such bulletin shall be daily furnished to such persons in charge of such schools in townships of the second class, and in cities, boroughs, and townships of the first class, not having boards of health or bodies acting as such, by the health officer for the State Department of Health.

Daily reports of health authorities.

Report by health officer.

Section 13. Upon the removal to a hospital or other place, or upon the discharge by the recovery or death of any person or persons who has or have suffered from tuberculosis or any of the diseases mentioned in section two of this act, all premises which have been occupied by the said person or persons while suffering from any of the said diseases shall be fumigated and disinfected, or destroyed, at such time and in such manner as may be authorized and required by the health authorities.

Upon removal or discharge.

Fumigation, disinfection or destruction of premises.

Section 14. No person suffering from any of the diseases mentioned in section two of this act, nor any one who has charge of the persons so suffering, shall enter any hired vehicle or other public conveyance, or permit anyone in his or her charge who is suffering therefrom to enter such vehicle, without previously securing the consent of health authorities, and notifying the owner or driver thereof that he or she, or the person in his or her charge, is so suffering; and the owner or driver of such vehicle shall immediately provide for the disinfection of such conveyance, under the direction of the health authorities, after it has with the knowledge of such owner or driver conveyed any such sufferer.

Hired vehicles or public conveyance.

Disinfection.

Section 15. No person suffering from anthrax, bubonic plague, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), chicken-pox, Asiatic cholera, diphtheria (diphtheritic croup, membranous croup, putrid sore throat), measles, German measles, glanders (farcy), mumps, relapsing fever, scarlet fever (scarlatina, scarlet rash), smallpox (variola, varioloid), typhus fever, typhoid fever, yellow fever, or whooping-cough, shall wilfully expose himself or herself in any street or public place, or public conveyance, nor shall any person in charge of anyone so suffering thus expose the sufferer.

Exposure in public places prohibited.

Use of infected clothing, bedding, etc.

Section 16. No person, without previous disinfection, shall give, lend, sell, transmit, or expose any bedding, clothing, rags, or other articles which have been exposed to infection from any of the diseases mentioned in section one of this act: Provided, That such restriction shall not apply to the transmission of articles, with proper precaution, for the purpose of having the same disinfected.

Proviso.

Letting of room or house.

Section 17. No person shall let any room, house, or part of a house, in which there has been a person suffering from tuberculosis or any of the diseases mentioned in section two of this act, without having such room, house, or part of a house, and all articles therein, previously disinfected to the satisfaction of the health authorities. The keeping of a hotel, boarding-house, or apartment-house shall be deemed as letting a part of a house to any person who shall be admitted as a guest into such hotel, boarding-house, or apartment-house.

Hotels, boarding-houses, etc.

Rules and regulations may be established by the health authorities.

Section 18. The health authorities of the several townships, boroughs, and cities of this Commonwealth may, and they are hereby authorized and empowered to, establish additional rules and regulations regarding the isolation and quarantine of persons who may be suffering from any of the diseases mentioned in section one of this act, and for the destruction, disinfection, and fumigation of bedding, clothing, or other infected articles, and for the disinfection and fumigation of houses and premises, and for the carrying out of the provisions of this act, as they may in good faith declare the public safety and health demand; which rules and regulations they may, from time to time, alter or amend, but in no instance shall such rules abridge in any way the provisions of this act or the regulations of the State Department of Health.

Burial preparations.

Section 19. In the preparation for burial of the body of any person who has died of Asiatic cholera, glanders (farcy), bubonic plague, smallpox (variola, varioloid), yellow fever, typhus fever, scarlet fever (scarlatina, scarlet rash), relapsing fever, cerebrospinal meningitis (epidemic), (cerebrospinal fever, spotted fever), diphtheria (diphtheritic croup, membranous croup, putrid sore throat), tetanus, or leprosy, it shall be the duty of the undertaker, or person acting as such, to thoroughly disinfect and place such body within the coffin or casket in which it is to be buried within six hours after being first called upon to take charge of the same, provided said call is made between the hours of five ante meridian and eleven post meridian; otherwise, such body shall be placed in such coffin or casket within twelve hours; the coffin or casket then to be closed tightly, and not again opened unless permission be granted by the health authorities for special and satisfactory cause shown.

Duty of undertaker.

Section 20. The body of a person who has died of any of the diseases mentioned in section nineteen of this act shall not remain unburied for a longer period of time than thirty-six hours after death, unless special permission be granted by the health authorities extending the time during which said body shall remain unburied, for special and satisfactory cause shown. The undertaker, or person acting as such, shall be responsible for any violation of the provisions of this section.

Interment.

Section 21. All services held in connection with the funeral of the body of a person who has died of any of the diseases mentioned in section nineteen of this act shall be private, and the attendance thereat shall include only the immediate adult relatives of the deceased, who may not at the time be under absolute quarantine restrictions, and the necessary number of adult pall-bearers, and any advertisement of such funeral shall state the cause of death.

Funeral services.

Private.

Section 22. The body of a person who has died of any of the diseases mentioned in section nineteen of this act shall, in no instance, be taken into any church, chapel, public hall, or public building, for the holding of funeral services. The undertaker, or person acting as such, and the sexton, janitor, or other person having control of such church, chapel, public hall, or public building, shall be responsible for any violation of the provisions of this section.

Body shall not be taken into public building.

Section 23. No undertaker, or person acting as such, at the funeral or burial of the body of a person who has died of any of the diseases mentioned in section nineteen of this act, shall furnish or provide for such funeral or burial more than the necessary number of conveyances for such adult relatives as are mentioned in section twenty-one of this act, and pall-bearers; and all such conveyances shall be fumigated and disinfected, at such time and in such manner as may be directed and required by the health authorities.

Conveyances at funeral.

Section 24. The body of a person who has died of any of the diseases mentioned in section nineteen of this act shall not be conveyed from any dwelling, or other building or place, to any cemetery or other point or place, except in a hearse, or other vehicle used for the purpose of carrying corpses only, or in such vehicles as shall be satisfactory to the health authorities, and under such regulations as they may in any case adopt. The undertaker, or person acting as such, having charge of the funeral or transportation of such body, shall be responsible for any violation of the provisions of this section.

Vehicle for conveyance of the body.

Section 25. The health authorities of the several cities, boroughs, and townships of the first class, shall, at the end of each week, and for the fraction of each

Weekly report by health authorities.

week occurring at the end of each month, report to the State Department of Health, upon blanks supplied for that purpose, a list of all cases of communicable diseases, mentioned in section one of this act, which have been reported to them during said period; which report shall contain the name of each person suffering therefrom, respectively, and his or her age, sex, color, and nativity, together with the name of the disease and the date of the onset thereof; and, in the event of no reports of any of said diseases having been received by the aforesaid health authorities, respectively, during any said period, that fact shall be reported to the State Department of Health.

Details.

Removal, defacement, etc., of placards.

Section 26. Any person who shall remove, deface, cover up, or destroy, or cause to be removed, defaced, covered up, or destroyed, any placard relating to any of the diseases mentioned in section two of this act, shall, for every such offense, upon conviction thereof in a summary proceeding before any magistrate or justice of the peace of the county wherein such offense was committed, be sentenced to pay a fine of not less than ten ($10) dollars or more than one hundred ($100) dollars, to be paid to the use of said county, and costs of prosecution, or to be imprisoned in the county jail for a period of not less than ten days or more than thirty days, or both, at the discretion of the court. Any person, other than the attending physician or trained nurse, who shall enter or leave any quarantined premises, without having secured permission from the health authorities; or who shall violate any of the quarantine restrictions imposed by this act, or by the rules and regulations of the health authorities of any city, borough, or township of the first class, or the rules and regulations of the State Department of Health; or who shall interfere with a health officer or any other duly qualified agent of the State Department of Health, or of any local board or department of health, in the discharge of his official duties in the placarding, quarantining, disinfecting, or releasing from quarantine of any premises, or in the investigation of any alleged case of a quarantinable disease, shall, for every such offense, upon conviction thereof in a summary proceeding before any magistrate or justice of the peace of the county wherein said offense was committed, be sentenced to pay a fine of not less than fifty ($50) dollars or more than one hundred ($100) dollars, to be paid to the use of the said county, and costs of prosecution, or to be imprisoned in the county jail for a period of not less than ten or more than thirty days, or both, at the discretion of the court.

Penalty.

Disobedience of quarantine regulations, etc.

Interference with health officers.

Penalty.

Violation of provisions of this act.

Any physician, undertaker, teacher of a public school, principal of a school, superintendent of a Sunday school, sexton, janitor, parent, or guardian, or any other person or persons who shall fail, neglect, or refuse to comply with, or who shall violate, any of the provisions of this act, shall, for every such offense, upon conviction thereof in a summary proceeding before any magistrate or justice of the peace of the county wherein said offense was committed, be sentenced to pay a fine of not less than twenty ($20) dollars or more than one hundred ($100) dollars, to be paid to the use of said county, and costs of prosecution, or to be imprisoned in the county jail for a period of not less than ten or more than thirty days, or both, at the discretion of the court.

Penalty.

Section 27. Section one (except the enacting clause thereof) and sections two, three, four, five, six, seven, eight, nine, ten, eleven, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, and nineteen of an act, entitled "An act to provide for the more effectual protection of the public health in the several municipalities of this Commonwealth," approved June eighteenth, one thousand eight hundred and ninety-five; and the act of May fourteenth, Anno Domini nineteen hundred and nine, entitled "An act to safeguard human life and health throughout the Commonwealth, by providing regulations for the control of certain communicable diseases and the prevention of infection therefrom, and prescribing penalties for violation of said regulations," and all other acts, or parts of acts, inconsistent herewith, are hereby repealed.

Repeals.

Part of act of June 18, 1895, cited for repeal.

Act of May 14, 1909 (P. L. 855) cited for repeal.

APPROVED—The 28th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To amend section three of an act, approved the twenty-third day of June, one thousand eight hundred eighty-five, entitled "An act relating to marriage licenses, providing for officers herein indicated to issue licenses for parties to marry," as amended.

Section 1. Be it enacted, &c., That so much of section three of an act, approved the twenty-third day of June, one thousand eight hundred eighty-five, entitled "An act relating to marriage licenses, providing for officers herein indicated to issue licenses for parties to marry," which, as amended by an act approved the twenty-fourth day of March, one thousand nine hundred five, entitled "An act to further amend an act, entitled 'An act relating to marriage licenses, providing for officers herein indicated to issue licenses for parties to marry,' approved the twenty-third day of June, one thousand eight hundred and eighty-five, empowering notaries public to inquire of parties intending to

Marriage licenses.

marry touching the legality of their contemplated marriage, and administer oaths to them," which reads as follows:—

Act of June 23, 1885, as amended by act of March 24, 1905, cited for amendment.

"The clerk of the court shall inquire of the parties applying, either separately or together, for marriage license, as aforesaid, on oath or affirmation, relative to the legality of the contemplated marriage, the age of the parties, the consent of parents or guardians of such as are under the full age of twenty-one years, and any prior marriage or marriages and its or their dissolution; and, if there be no legal objection thereto, he shall grant such marriage license; or, the parties intending marriage may, either separately or together, appear before any magistrate, alderman, notary public, or justice of the peace of the township, ward, or county, wherein either of the contracting parties resides, and in the county where the license is desired, who may and is hereby authorized to inquire of them touching the legality of their contemplated marriage, the age of the parties, the consent of parents or guardians, when required, and such prior marriage and dissolution thereof; and such inquiries and the answers thereto, having been subscribed and sworn to by the parties before such officer, may be forwarded to the clerk of the court, who, if satisfied after an examination thereof that the same is genuine and that no legal objection to the contemplated marriage exists, shall grant a license therefor; and, if any of the persons intending to marry by virtue of such licenses shall be under twenty-one years of age, the consent of their parents or guardians shall be personally given before such clerk, or certified under the hand of such parent or guardian, attested by two adult witnesses, and the signature of such parent or guardian shall be properly acknowledged before a notary public or other officer competent under the laws to receive acknowledgments; which said certificate and oath shall be filed of record in said office, and entry of the same shall be made by the said clerk on the marriage license docket, as a part of the records of the issuing of said license; and for which he shall receive as his fee the sum of fifty cents, in addition to the marriage license fee; and the said magistrate, alderman, notary public, or justice of the peace, for services rendered by him under the provisions of this act, shall be entitled to fifty cents," is further amended to read as follows:—

Legality of proposed marriage to be verified by oath of contracting parties before clerk of the court.

The clerk of the court shall inquire of the parties applying, either separately or together, for marriage license, as aforesaid, on oath or affirmation, relative to the legality of the contemplated marriage, the age of the parties, the consent of parents or guardians of such as are under the full age of twenty-one years, and any prior marriage or marriages and its or their dissolution; and, if there be no legal objection thereto, he shall grant such marriage license; or, the parties intending marriage may, either separately or together, appear before any magistrate, alderman, notary public, or justice of the peace of the township, ward, or county wherein either of the contracting parties resides, and in the county where the license is desired, who may and is hereby authorized to inquire of them touching the legality of their contemplated marriage, the age of the parties, the consent of parents or guardians, when required, and such prior marriage and dissolution thereof; and such inquiries and the answers thereto, having been subscribed and sworn to by the parties before such officer, may be forwarded to the clerk of the court, who, if satisfied after an examination thereof that the same is genuine and that no legal objection to the contemplated marriage exists, shall grant a license therefor. If any of the persons intending to marry by virtue of such license shall be under twenty-one years of age, the consent of their parents or guardians shall be personally given before such clerk, or certified under the hand of such parent or guardian, attested by two adult witnesses, and the signature of such parents or guardian shall be properly acknowledged before a notary public or other officer competent under the laws to receive acknowledgments. The certificate and oath shall be filed of record in said office, and entry of the same shall be made by the said clerk on the marriage license docket, as a part of the records of the issuing of said license; and for which he shall receive as his fee the sum of fifty cents in addition to the marriage license fee. *When any such minor has no guardian, and the judge of the orphans' court is absent or not accessible, for any reason, the clerk of the orphans' court, or a duly appointed assistant clerk of said court, may appoint for such minor a guardian pro hac vice.* A magistrate, alderman, notary public, or justice of the peace, for services rendered by him under the provisions of this act, shall be entitled to fifty cents.

Or before magistrate, alderman, justice of the peace, or notary public.

Duties of magistrates, etc.

License.

Consent of parents, etc.

Witnesses.

Record.

Fee.

Appointment of guardian.

Fee.

Approved—The 28th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

For the protection of the public health: by providing that persons, firms, or corporations, who are operating or conducting hotels, restaurants, dining-cars, or other public eating-places in this Commonwealth, shall not employ or keep in their employ, as cooks, waiters, kitchen-help, chambermaids, or other house-servants, any person or persons who are suffering from trachoma, active tuberculosis of the lungs, open skin tuberculosis, syphilis, gonorrhea, open external cancer, or barber's itch, or who are carriers of typhoid fever; and further providing that no dishes, receptacles, or utensils used in eating or drinking shall be furnished to patrons or customers of any such public eating-place, unless the same have been thoroughly cleansed since used by another individual; and further providing that no towels shall be furnished in any wash-room, in connection with any such public eating-place, unless such towels be laundered or discarded after each individual use; and further providing that no common drinking-cups shall be furnished at any public drinking-place operated in connection with any such public eating-place; and providing penalties for violations of the provisions of this act.

Those conducting public eating places, etc., prohibited from employing help or servants suffering from certain diseases.

Section 1. Be it enacted, &c., That no person or persons, firm, corporation or common carrier, operating or conducting any hotel, restaurant, dining-car, or other public eating-place in this Commonwealth, shall hereafter employ or keep in their employ, in the capacity of cook, waiter, chambermaid, kitchen-help, or other house-servant, any person or persons who is or are suffering from trachoma, active tuberculosis of the lungs, open skin tuberculosis, syphilis, gonorrhea, open external cancer, or barber's itch; and all persons, so employed, who, at the time of the passage of this act, are suffering from any of the said diseases, shall at once be excluded from such employment in such hotel, restaurant, dining-car or other public eating-place.

Exclusion from employment.

Section 2. If any person or persons, firm, corporation or common carrier, operating or conducting a hotel, restaurant, dining-car, or other public eating-place, shall institute and maintain a medical inspection for their cooks, waiters, chambermaids, kitchen-help, and other house-servants, at intervals of at least twice a year, for the purpose of excluding from such employment persons found to be suffering from any of the diseases mentioned in section one of this act; and shall, thereupon, promptly exclude from such employment any person or persons found to be so suffering, they shall be considered as complying with the provisions of section one of this act, unless: (1) Any person or persons employed in any such capacity after the passage of this act shall have been suffering from any of the diseases mentioned in section one of this act at the time when they were so employed; or unless (2) the diseased condition of such employe suffering with any of the diseases mentioned in section one of this act is manifest in the interim between such inspections; or unless (3) notice of the diseased condition of any such employe, suffering from any of the diseases mentioned in section one of this act has been served, in writing,

Medical inspection.

Compliance with the provisions of section one, and exceptions.

upon the owner, operator, or manager of any such hotel, restaurant, dining-car, or other public eating-place by a physician or by the health authorities.

Section 3. That no person or persons, firm, or corporation, operating or conducting any hotel, restaurant, dining-car, or other public eating-place in this Commonwealth, shall keep in their employ, in any of the several capacities mentioned in section one of this act, any person who is a carrier of typhoid fever, after notice that any person so employed by them is a carrier of typhoid fever has been served in writing, upon the owner, operator, or manager of any such hotel, restaurant, dining-car, or other public eating-place, by a physician or the health authorities.

Carrier of typhoid fever.

Notice.

Section 4. That no person or persons, firm, or corporation, operating or conducting any hotel, restaurant, dining-car, or other public eating-place in this Commonwealth, shall furnish to their patrons or customers any dish, or other receptacle or utensil, used in eating or drinking, which has not been thoroughly cleansed since it was used by another individual.

Cleansing of dishes. etc.

Section 5. That no person or persons, firm, or corporation, operating or conducting any hotel, restaurant, dining-car, or other public eating-place and having and maintaining in connection therewith any wash-room for public use, or for the use of their patrons or customers, shall furnish in such wash-room any towel, unless such towel be laundered or discarded after each individual use.

Towels.

Section 6. That no person or persons, firm, or corporation, operating or conducting any hotel, restaurant, dining-car, or other public eating-place, shall furnish, or keep in or about such establishment, at any drinking-fountain or public drinking-place to which the public, or their customers or patrons, have access, any common drinking-vessel for common use: Provided. That this section shall not preclude the use of vessels which are cleansed by washing with hot water and soap, or are disinfected or destroyed, after each individual use.

Common drinking-vessels.

Proviso.

Section 7. That any person or persons, firm, or corporation, who shall violate any of the provisions of this act, shall, upon conviction thereof, in a summary proceeding before any justice of the peace or alderman in the county in which the offense was committed, be sentenced to pay a fine of not less than five ($5) or more than one hundred ($100) dollars, to be paid to said county, and the costs of prosecution, or to be imprisoned in the county jail for a period of not more than thirty (30) days, or both, at the discretion of the court.

Violations.

Penalty.

Approved—The 28th day of May, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To prohibit in cities of the second class the construction or erection of public or community vaults, crypts, or mausoleums (that is to say, vaults, crypts, or mausoleums, or parts of mausoleums, intended for sale to the public), for the interment of human bodies, where the building containing such vaults, crypts, or mausoleums is wholly or partially above the surface of the ground.

Preamble.

Whereas, In cities of the second class, it is deemed inimical to public policy and public health, for sanitary and civic reasons, to permit the construction or erection of public or community vaults, crypts, or mausoleums (that is to say, vaults, crypts, mausoleums, or parts of mausoleums, intended for sale to the public), for the interment of human bodies, where the building containing such vaults, crypts, or mausoleums is wholly or partially above the surface of the ground:—

Cities of the second class.

Vaults, crypts, and mausoleums.

Section 1. Be it enacted, &c., That no person, firm, or corporation shall hereafter, in cities of the second class, commence, build, construct, or erect any public or community vault or mausoleum; that is to say, vaults, crypts, or mausoleums, wherein such vaults, crypts, or parts of mausoleums, are intended to be sold or offered for sale to the public; for the interment therein of human bodies, where such public or community vaults, crypts, or mausoleums are in a building or buildings wholly or partially above the surface of the ground.

Approved—The 1st day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Relating to the maintenance of insane, feeble-minded, and other persons confined in the various institutions of the Commonwealth; fixing liability for their support; providing for the collection of the moneys due the Commonwealth therefor, and for proceedings relating thereto.

Insane, feeble-minded, and other persons who are inmates of State institutions.

Maintenance

Section 1. Be it enacted, &c., That whenever any person is maintained as an inmate of any hospital, home, sanatorium, or other institution of the Commonwealth, in whole or in part at the expense of the Commonwealth, the property or estate of such person shall be liable for such maintenance, to be paid or recovered as hereinafter provided.

Trustees, committees, guardians, etc., shall report to the Attorney General.

Section 2. Every trustee, committee, guardian, or other person nominated or appointed to take charge of the estate of any lunatic, feeble-minded, or any other person, who is an inmate of any home, asylum, or other institution maintained in whole or in part by the Commonwealth, shall, within six months after his appointment, make a true and full report, under oath, to the Attorney General, showing the amount and character of said estate, and every year thereafter report to the Attorney General what, if any, changes there are in said estate; and every executor or administrator of any deceased inmate of any asylum, home, or institution, maintained in whole or in part by the Commonwealth of Pennsylvania, shall, within six months after letters testamentary or of administration have been issued, make a true, full and complete report, under oath, to the Attorney General, of the extent and character of such estate.

Executors and administrators shall report.

Section 3. The husband, wife, father, mother, child, or children of any person who is an inmate of any asylum, hospital, home, or other institution, maintained in whole or in part by the Commonwealth of Pennsylvania, and who is legally able so to do, shall be liable to pay for the maintenance of any such person, as hereinafter provided.

Relative of inmates, if able so to do, shall pay for maintenance.

Section 4. The court of common pleas of the county of the residence of any inmate of any home, hospital, asylum, or other institution, maintained in whole or in part by the Commonwealth of Pennsylvania, shall have power, upon the application of the Attorney General, to make an order, for the payment of maintenance to the Commonwealth, upon the trustee, committee, guardian, or other person who has charge of the estate of any such inmate, or against the father, wife, mother, child, or children of any person so maintained; and any order made against the husband, wife, father, mother, child, or children shall be in such amount as the court, in its discretion, deems proper, taking into consideration their ability to pay for said maintenance, and said court may also, upon like application, direct any trustee, committee, guardian, or other person having charge of any such estate, to file with the Attorney General the statement required by the second section of this act.

Powers of the court.

Order.

Section 5. The sworn statement of the superintendent, steward, or other person, in whose custody are kept the records of any hospital, home, asylum, or other institution wherein persons are maintained in whole or in part at the expense of the Commonwealth, shall be received as prima facie evidence, in any court of this Commonwealth, of the amount expended by the Commonwealth for the support or maintenance of any such person, in any proceeding brought to recover the amount of such maintenance.

Sworn statement of superintendent, steward, etc.

Evidence.

Section 6. All claims by the Commonwealth for maintenance, as herein provided, in the distribution of any of the estate of any person so maintained, shall

Precedence of claims by the **Commonwealth.**

take precedence and be paid after other claims which by law are now given precedence, and before any claims of general creditors.

Payment of claims against estate.

Section 7. Where there is a claim against the estate of any person maintained in any home, hospital, asylum, or other institution, both on behalf of the Commonwealth and on behalf of any county or poor district, and there is not sufficient in the estate to pay the claim in full, the same shall be paid pro rata to the State and the county, in the proportion of the amount of maintenance legally recoverable by each.

Intent of act.

Section 8. This act of Assembly is intended to apply to the collection of claims for maintenance due the Commonwealth at the time of its passage as well as those to become due hereafter.

Repeal.

Section 9. All acts or parts of acts inconsistent with this act are hereby repealed.

Approved—The 1st day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To amend an act, entitled "An act to provide for State registration of nurses, to establish a State Board of Examiners in connection therewith, and to provide penalties for the violation of certain provisions regarding such registration," approved the first day of May, one thousand nine hundred and nine; providing further regulation as to applications for examination for registration of nurses and the fee chargeable therefor, and providing for the making of reports of training schools for nurses whose competency for instruction is approved by the said board.

Registration of nurses.

Section 1. Be it enacted, &c., That section four of the act, entitled "An act to provide for State registration of nurses, to establish a State Board of Examiners in connection therewith, and to provide penalties for the violation of certain provisions regarding such registration," approved the first day of May, one thousand nine hundred and nine, which reads as follows:—

Section 4, act of May 1, 1909, cited **for amendment.**

"Section 4. The secretary, immediately upon the registration of every nurse, shall file in *the office of the Secretary of the Commonwealth,* under the seal of the said Board of Examiners, an exact counterpart of the certificate issued to the holder thereof; and said counterpart shall be filed and indexed *in the office of the Secretary of the Commonwealth,* and kept by him for public inspection and information. If the secretary of the board neglect to file said counterpart, as aforesaid, for more than twenty days from the date of issue of the corresponding certificate, unless prevented therefrom by sickness or other unavoidable inability, the said secretary shall be held guilty of a breach of duty, and shall forfeit his or her membership and his or her offices in the said Board of Examiners," is hereby amended to read as follows:—

Filing of a copy of certificate.

State Commissioner of Health.

Section 4. The secretary, immediately upon the registration of every nurse, shall file in the office of the *State Commissioner of Health,* under the seal of the said Board of Examiners, an exact counterpart of the certificate issued to the holder thereof; and said counterpart shall be filed and indexed in the office of the *State Commissioner of Health,* and kept by him for public inspection and information. If the secretary of the board neglect to file said counterpart, as aforesaid, for more than twenty days from the date of issue of the corresponding certificate, unless prevented therefrom by sickness or other unavoidable inability, the said secretary shall be held guilty of a breach of duty and shall forfeit his or her membership and his or her offices in the said Board of Examiners.

The nurses' registration records now in the office of the Secretary of the Commonwealth, shall, upon the approval of this amendment, be transferred to the office of the Commissioner of Health.

Section 2. Section five of said act, which reads as follows:—

Section 5, act of May 1, 1909, cited for amendment.

"Section 5. The secretary of the board shall receive a salary not to exceed one hundred dollars ($100.00) a year. All members of the board shall receive five dollars ($5.00) a day for each day actually engaged in the transaction of official business, together with all actual expenses incurred, as aforesaid. All expenditures of the said board shall be paid from the fees received thereby under the provisions of this act, and said expenditures shall in no case be paid from the State Treasury. The treasurer of the board shall give bond, in such sum as may be fixed by the by-laws, which bond shall be subject to the approval of the State Treasurer. The said treasurer shall pay the necessary and current expenses of the board, and may retain in the treasury a sum not exceeding *one* thousand dollars to defray the ordinary expenditures; but all moneys exceeding the said sum of *one* thousand dollars shall be paid by the treasurer of the board to the State Treasury. The said board shall have no power to fix prices, or in any way control the compensation received by the registered nurse," be amended to read as follows:—

Salaries.

Expenses.

Section 5. The secretary of the board shall receive a salary not to exceed one hundred dollars ($100.00) a year. All members of the board shall receive five dollars ($5.00) a day for each day actually engaged in the transaction of official business, together with all actual expenses incurred as aforesaid. All expenditures of the said board shall be paid from the fees received thereby under the provisions of this act, and said expenditures shall in no case be paid from the State Treasury. The treasurer of the board shall give bond, in such sum as may be fixed by the by-laws, which bond shall be subject to the approval of the State Treasurer. The said treasurer shall pay the necessary and current expenses of the board, and may retain in the treasury a sum not exceeding *five* thousand dollars to defray the ordinary expenditures; but all moneys exceeding the said sum of *five* thousand dollars shall be paid by the treasurer of the board to the State Treasury. The said board shall have no power to fix prices or in any way control the compensation received by the registered nurse.

Bond of treasurer.

Section 3. That section seven of said act, which reads as follows:—

Section 7, act of May 1, 1909, cited for amendment.

"Section 7. No application for registration shall be considered unless accompanied by a fee of *five* dollars. Every applicant to be eligible for examination must furnish evidence, satisfactory to the board, that he or she is twenty-one years of age or over, is of good moral character, and has graduated from a training school for nurses which gives at least a two years' course of instruction, or has received instruction in different training schools or hospitals for periods of time amounting to at least a two years' course, as aforesaid, and then graduated, and that such applicant, during said period of at least two years, has received practical and theoretical training in surgical and medical nursing," shall be amended so as to read as follows:—

Fee.

Eligibility of applicants.

Section 7. On and after August first, one thousand nine hundred and fifteen, no application for registration shall be considered unless accompanied by a fee of *ten* dollars. Every applicant to be eligible for examination must furnish evidence, satisfactory to the board, that he or she is twenty-one years of age or over, is of good moral character, and has graduated from a training school for nurses which gives at least a two years' course of instruction, or has received instruction in different training schools or hospitals for periods of time amounting to at least a two years' course, as aforesaid, and then graduated, and that such applicant, during said period of at least two years, has received practical and theoretical training in surgical and medical nursing: *Provided, That a graduate nurse registered in any State of the United States, where the requirements for registration, in the judgment of the registration board for nurses of this State, are at least equal to the requirements of law for such nurses in Pennsylvania, may, at the discretion of the board, be registered without examination, upon application in writing on forms provided by the board, and*

Proviso.

Registration in another State.

upon the payment of a fee of ten dollars: And provided further, That it shall be the duty of the said registration board to prepare and make a report for public distribution, at intervals regulated by the by-laws of the said board, of all training schools or combinations of training schools that are approved by the board as possessing the necessary requirements for giving a pupil-nurse a full and adequate course of instruction: And provided further, That a State educational director of training schools for nurses shall be appointed by the State Board of Examiners for the Registration of Nurses of the State of Pennsylvania. This appointee shall be a registered nurse, and under the direction of the board of examiners, and her duty shall be to assist in maintaining the necessary standards in the living, working, and educational conditions of training schools for nurses. The salary of the educational director shall be one thousand four hundred dollars ($1,400) per year, and her railroad mileage, to be paid from the additional registration fee provided for in this act.

Fee.

Proviso.

Report of board.

Proviso.

State educational director of training schools.

Qualifications.

Salary.

Section 4. All acts or parts of acts inconsistent herewith be and the same are hereby repealed.

Approved—The 4th day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Relating to the indebtedness of municipalities, and providing for carrying into operation section fifteen of article nine of the Constitution of Pennsylvania, so far as it relates to municipalities.

Section 1. Be it enacted, &c., That obligations which have been heretofore issued, or which may hereafter be issued by any municipality other than Philadelphia, to provide for the construction or acquisition of waterworks, subways, underground railways or street railways, or appurtenances thereof, shall not be considered as a debt of the municipality, within the meaning of any act of Assembly of the Commonwealth of Pennsylvania authorizing or limiting the incurring of debt or indebtedness, or the increasing of debt or indebtedness, by any municipality, whether with or without the assent of the electors thereof, if the net revenue derived from said property for a period of five years, either before or after the acquisition thereof (or where the same is constructed by the municipality, after the completion thereof) shall have been sufficient to pay interest and sinking-fund charges during said period upon said obligations, or if the said obligations shall be secured by liens upon the respective properties, and shall impose no municipal liability.

Municipal indebtedness for certain public works.

Section 2. Where a municipality shall issue obligations to provide for the construction of water-works, subways, underground railways or street railways, or appurtenances thereof, the municipality may also issue obligations to provide for the interest and sinking-fund charges accruing thereon until said properties shall have been completed and in operation for a period of one year; and said municipality shall not be required to levy a tax to pay said interest and sinking-fund charges, until after said properties shall have been operated by the municipality during the said period of one year.

Issue of obligations for construction.

Tax levy after year's operation.

Section 3. Any of the said municipalities may incur indebtedness in excess of seven per centum, and not exceeding ten per centum, of the assessed valuation of the taxable property therein, if said increase of indebtedness shall have been assented to by three-fifths of the electors voting at a public election, in such manner as shall have been or may hereafter be provided by law for the increase of indebtedness by municipalities with the assent of the electors.

Assent of electors to increase of indebtedness.

Section 4. Said municipalities shall have all the rights and powers necessary and needful to carry out the provisions of this act.

Rights and powers.

Section 5. Should any section or provision of this act be held by the court to be invalid or unconstitutional, it shall not be held to affect any other section or provision of this act.

Act as construed.

Approved—The 5th day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

Providing for the construction, maintenance and operation of main, or trunk, sanitary sewers, and of sewerage-disposal plants, by the several counties of this Commonwealth; making such main, or trunk, sewers, and sewerage-disposal plants, county sewers and county disposal plants; for the formation of sewer districts in the several counties of this Commonwealth; the preparation of separate copies of the assessed value, for county purposes, of the taxable properties included in such sewer districts; authorizing the taking of property for the construction of such main, or trunk, sewers, and disposal plants; and providing for the compensation therefor, and the damages resulting from such taking; providing for the payment of the costs and expenses incurred in the constructing, maintaining, and operating of such main, or trunk, sewers, and disposal plants; and authorizing the levy of a tax upon said sewer districts to provide a fund for said purposes; and providing for and regulating certain allowances and rebates to municipalities which have incurred, or become liable for, costs of construction.

Section 1. Be it enacted, &c., That the several counties of this Commonwealth shall have the power, and they are hereby authorized, whenever the commis-

County commissioners.

sioners, or a majority of them, shall, by resolution duly adopted, deem it expedient so to do,—and upon approval thereof by a grand jury and by the court of quarter sessions as hereinafter provided,—to construct and maintain main, or trunk, sanitary sewers, and sewerage-disposal plants, under the provisions of this act; and any such main, or trunk, sewers, or disposal plants, constructed under the provisions of this act, shall forever thereafter be county sewers and disposal plants; and the duty of maintaining, operating and keeping the same in repair shall devolve upon the county, and the expense thereof shall be paid by the county as hereinafter provided.

Construction of main sewers and sewerage-disposal plants.

Section 2. That the several courts of quarter sessions of this Commonwealth shall have authority, within their respective counties, to establish sewer districts in their several counties, or to decree that the said county shall form one or more sewerage districts, having respect to the topography of the county and the course of natural drainage, upon application of the county commissioners, or upon petition of fifty freeholders resident in the locality for which a sewer district is prayed for; and upon the presentation of such petition, the court shall appoint three viewers—for whom the county engineer shall act as artist—to inquire into the propriety of granting the prayer of the petition, whose duty shall be to investigate the same, and make a plan or draft showing the boundaries of sewer districts formed, and report at a date to be fixed by said court; at which time, or any subsequent time to which said return day may be extended by the court, said report shall be filed and confirmed nisi by the court; and notice of said filing, and that exceptions may be filed to said report within thirty days after said confirmation nisi, shall be published in one or more newspapers of the county, as the court may designate, once a week for four weeks; and if exceptions be filed upon hearing thereof, said court may modify or change said report, or readjust the boundary lines thereof, or refer the same back to the same or other viewers; and if no sufficient cause be shown to the contrary, said report shall be approved absolutely, and said district or districts so formed shall comprise separate sewerage districts of said county, and be designated by number.

Establishment of sewer districts.

Petition.

Viewers.

Engineer.

Plans.

Report.

Notice of filing.

Exceptions.

Approval.

Section 3. Whenever the commissioners of any county of this Commonwealth shall resolve to construct any such main, or trunk, sewers, or sewerage-disposal plants, in accordance with the provisions of this act, they shall cause to be prepared surveys and plans of such main, or trunk, sewers, or disposal plants, showing the location, termini, size, depth, and type of construction of such sewer or sewers, and the location,

Survey, etc.

size, and type of construction of such disposal plants; together with the properties, and the names of the owners thereof, through which said sewer or sewers extend, or upon which the same abuts; and the properties and names of the owners of the land upon which such disposal plants are to be located, or upon which the same abuts; together with an estimate of the cost and expense of the same. The plans and estimates shall show the location and capacity of any main, or trunk, sanitary sewer or sewers, or sewerage-disposal plant, either completed or in course of construction, together with the cost or probable cost thereof. The estimates shall provide for, and make, such allowance or rebate to the municipality or municipalities which shall have paid, assumed, or contracted for the cost of such main, or trunk, sanitary sewer or sewers, or disposal plants, as shall be agreed upon between the county and the municipality or municipalities interested; and, in the event of failure so to agree, the allowance or rebate shall be determined by the court of common pleas of the proper county, upon application of either party. The county commissioners shall, thereupon, present such surveys, plans and estimates, or a copy thereof, together with their petition, to the court of quarter sessions of the county; and, upon filing thereof, the court shall direct notice to be given of the same, substantially describing the line of the proposed sewer or sewers, and the location of the proposed disposal plants by publication, at least once a week for three consecutive weeks, in at least two newspapers of general circulation, published in the county wherein said proposed sewers or disposal plants are to be made or constructed, and of the time when said application will be laid before the grand jury; and, after publication as aforesaid, the said court shall cause the said application to be laid before the grand jury, when in session; and if a majority of said grand jury, after a full investigation of the matter by the grand jury, shall approve of the same, they shall certify their approval to the court; whereupon the court shall fix such time for filing exceptions to said proceedings as the court shall deem proper, and upon hearing thereof the said court may, for a cause shown, disallow such application; but, if no sufficient cause be shown to the contrary, said application shall be approved; and said court shall, thereupon, order that said sewers or sewerage-disposal plants shall be made and constructed in accordance with the plans and surveys accompanying the said application; and thereupon the location of such sewers and sewerage-disposal plants shall remain absolute.

Names of owners, etc.

Estimate of cost.

Capacity.

Agreement as to rebate, etc.

Filing of surveys, etc.

Publication.

Laid before grand jury.

Exceptions.

Approval.

Location.

Section 4. After such plans and specifications have been prepared by said county commissioners, and before presentation thereof to the court or grand jury, as provided for in section three of this act, they shall be submitted to the State Department of Health; and approval by said State Department of Health of the same shall be first had in accordance with the act of Assembly of April twenty-second, one thousand nine hundred and five, entitled "An act to preserve the purity of the waters of the State, for the protection of the public health."

Submission to State Department of Health.

Section 5. For the purpose of making all necessary preliminary surveys, in order to prepare such plans, surveys and estimates, the commissioners of the several counties of this Commonwealth, and the persons by them employed for such purposes, shall, and are hereby given the right to, enter upon private or public property and designate, by proper marks upon the ground, the line or location of any sewer or disposal plant, proposed to be made and constructed under, and for the purpose authorized in, this act.

Right of entry.

Designation of location.

Section 6. When said application, surveys and plans shall have been finally approved by such court, and said sewer or disposal plant ordered to be constructed as aforesaid, the said county commissioners, or a majority of them, shall endeavor to agree with the persons or parties interested in the properties affected thereby, as to the damages, if any, sustained or which seem likely to be sustained, by reason of the taking, injuring, or destroying such property; and upon agreement being made, the said commissioners shall report the same to such court, showing the amount of damages agreed to be paid and the names of the persons or parties to whom the same are payable; and upon the approval thereof by such court, the said damages shall be payable by said commissioners out of the moneys specifically raised for such purposes in the manner hereinafter provided.

Agreement with interested parties.

Report.

Approval. Damages.

Section 7. In case the said commissioners, or a majority of them, and the parties interested in the land upon which such sewers or disposal plants, shall, or are to be, made and constructed as aforesaid, fail to agree upon the compensation to be made for the property so taken, injured, or destroyed by reason of such sewer or disposal plant; then, upon petition of such commissioners, or a majority of them, or any person or parties interested in said proposed sewer, or disposal plant, and whose property or land is affected thereby, to a court of common pleas of said county, the said court of common pleas shall appoint three disinterested viewers, and appoint a time, not less than twenty nor more than thirty days thereafter, when said viewers shall meet upon the line of the proposed sewers or disposal plants and view the same and the properties affected thereby. The said viewers shall give

Failure to agree.

Petition.

Viewers.

Notice. at least ten days' notice by publication in the newspapers aforesaid, of the time and place of their first meeting, and shall also give notice thereof by handbills posted in conspicuous places along the line or in the vicinity of the said sewers or disposal plants.

Oath of office. Section 8. The said viewers, having been sworn or affirmed faithfully, justly and impartially to decide and true report make concerning all matters and things to be submitted to them, and in relation to which they are authorized to inquire under the provisions of this act; and, having viewed the properties connected with and affected by the said proposed sewers or disposal plants, Hearing. shall hear all parties interested and their witnesses; and, having due regard to the advantages and disadvantages, shall estimate and determine the damages, if any, for the property taken, used, or appropriated, and to whom the same are payable; Notice of meeting. they shall give at least ten days' notice thereof, in the manner herein provided, to all parties interested, of the time and place when said viewers will meet and exhibit their report Report. and hear any exceptions thereto; after making whatever changes are deemed necessary and proper, said viewers shall make report to the said court, showing the damages, if any, allowed; and file therewith Plan. a plan showing the properties acquired, taken, used, and appropriated for the purposes aforesaid, and the names of the persons or parties to whom such damages are payable. The said viewers shall have Powers of viewers. the right to adjourn from day to day, as may be found necessary, and to administer oaths to all parties and witnesses appearing before them and desiring to be heard upon all matters connected with the construction, maintenance and operation of such sewers or disposal plants.

Payment of damages. Section 9. All damages found, awarded, or sustained for, or on account of, the construction and operation of such sewers, or disposal plants, under the provisions of this act, and all cost and expense thereafter incurred in repairing and maintaining the same, shall be paid from the funds raised by taxation, as hereinafter provided and authorized.

When viewers may be appointed. Section 10. The viewers provided for in the foregoing sections may be appointed before, or at any time after, the entry, taking, appropriation, or injury of any private property used and acquired in the construction of such sewers or disposal plants. Costs. The cost of the said viewers, and of court charges incurred, including all advertising and notices, shall be paid by the said county.

Section 11. Upon the report of said viewers, or a majority of them, being filed in said court, any party in interest may, within thirty days thereafter, Exceptions to the report. file exceptions to the same; and the court shall have the power to confirm said report, or to modify, change, or otherwise correct and amend the same, or refer the same back to the same or new viewers, with like power as to their report; or, within thirty days after the filing of any report in court, the county commissioners, on behalf of the county or any party whose property is taken, injured, or destroyed, may appeal therefrom and demand a trial by jury; and any party so interested may, within thirty days after final decree and confirmation of said report by said court, have an appeal to the Supreme or Superior Court. That said court of common pleas shall have power to order and direct what notices shall be given in connection with any part of said proceedings, and make such orders as it may deem requisite in the premises. For the purposes of this act it shall be lawful for the majority of said board of viewers to hear, determine, pass upon and report all matters in this act relating to said viewers; but all said viewers shall act unless prevented by sickness or other unavoidable cause.

Appeal.

Jury trial

Appeal.

Powers of the court.

Quorum

Section 12. After said surveys and plans and the aforesaid application to the court of quarter sessions shall have been approved by the court, and the said sewers or disposal plants, as decreed by said court, ordered to be made and constructed in accordance therewith, the commissioners, or a majority of them, of the respective counties wherein the said sewers or disposal plants are made or to be made and constructed, shall invite proposals for the making and constructing of the same, by publication in at least two newspapers of general circulation published in said county; or, if no newspapers be published in said county, then in a newspaper or newspapers published in the county adjoining, once a week for four consecutive weeks, fixing a time therein when such proposals will be opened and the contracts therefor awarded; in addition to the notices so ordered to be given by publication, there shall be posted, in the office of the said commissioners of the respective counties, like notice as those now given, inviting proposals for the construction and repair of public roads and bridges; the contract, as aforesaid, shall be awarded by the said county commissioners, or a majority of them, to the lowest responsible bidder. No contract shall be awarded for any of said sewers or disposal plants until proper bonds shall be given for the faithful performance thereof, by the person or persons to whom the same shall be awarded, with proper security to be approved by said commissioners, or a majority of them. Any incorporated company doing business within any of said counties, authorized by law to be surety for persons or corporations, may be taken and accepted as surety upon the bonds herein required to be given.

Proposals for bids.

Publication

Posting of notice.

Award of contract.

Bonds.

Surety.

Plans and estimate for repair and maintenance.

Section 13. Said commissioners shall have prepared plans and estimates, as often as required, for the repair and maintenance of all county sewers or disposal plants which may hereafter be constructed under the provisions of this act, and become county sewers or disposal plants in their respective counties; they shall invite proposals for the repairing and maintenance of such sewer or disposal plants, or parts thereof, in accordance with such plans and estimates, and award the contract therefor in like manner as contracts for new sewers and disposal plants.

Contracts.

Section 14. For the purpose of performing all necessary duties relating to the construction and repairs of county sewers and disposal plants, herein authorized, the said county commissioners, or a majority of them, of the several counties of this Commonwealth, are hereby authorized to employ or appoint proper persons to prepare such surveys, plans and estimates, and do all necessary and proper work connected therewith, and shall fix the compensation of all persons so employed.

Preparation of surveys, plans, etc.

Section 15. The said commissioners, or a majority of them, of the several counties of this Commonwealth, are hereby authorized to levy, assess and collect an annual tax of not more than two mills upon the dollar upon all real and personal property within said county, now or hereafter taxable for county purposes, where the court has decreed that the entire county shall form one sewer district, for the purpose of acquiring and securing a fund from which to pay all costs, damages, and expenses required in the locating, construction, maintaining, repairing and operating of such county sewers or disposal plants, made or constructed under the provisions of this act, and for taking, using and enjoying of such land as may be necessary in constructing same; and the money so raised shall not be used, or expended, for any other purpose than that named in this section. Where one or more sewer districts has been formed by the court, under the provisions of this act, in any county, and the county does not comprise one entire sewer district, and county sewers or disposal plants are constructed, under the provisions of this act, to accommodate a particular sewer district of said county, the said commissioners, or a majority of them, of such counties are hereby authorized to have prepared separate copies of the assessed value, for county purposes, of the properties located within the sewer district wherein, or for whose use, such sewer or disposal plant has been constructed; and to levy, assess and collect an annual tax of not more than two mills upon the dollar upon all real and personal property within said sewer district, now or hereafter taxable for county purposes, for the purpose

Tax levy.

Fund.

As to a particular sewer district.

Levy of tax.

of acquiring and securing a fund from which to pay all costs, damages and expenses required in the locating, constructing, maintaining, and operating of such county sewer or disposal plant, in, or for the benefit of, said sewer district; and the money so raised shall not be used, or expended, for any other purpose than that named in this section, and shall not be expended or used for any other sewer district. All warrants for the payment of any portion of the money raised for the purposes aforesaid shall be issued by the said commissioners, or a majority of them, in the manner now provided by law in the several counties, upon estimates which shall be made from time to time, by the person charged with such duty; and the amount, and time within which the same shall be paid, shall be fixed and determined in the contract made for the public work herein authorized.

Fund.

Warrant.

Section 16. Should any board of county commissioners, in the exercise of the powers herein conferred, deem it necessary or advisable to enter upon a highway or highways in any city, borough or township for the purpose of constructing or maintaining any such main, or trunk, sewer or sewers, or disposal plants, the consent thereto of such city, borough, or township shall first be had and obtained.

Entry upon highways.

Section 17. All main, or trunk, sewers constructed under this act shall be of sufficient size and extent so that it shall not be burdensome upon any city, borough or township which is wholly or partly within the sewer district in which said main, or trunk, sewer is constructed, to connect its lateral sewers with said main or trunk, sewer, constructed under the provisions of this act; and a copy of the notice provided for under section three of this act shall be served upon the mayor, burgess, commissioners or supervisors of such city, borough or township forming any part of such sewer district, ten days before said application shall be laid before the grand jury; and any such city, borough or township shall have a right to be heard by said grand jury, and to file exceptions to said proceedings; and the approval of said application by the grand jury and by the court, shall be a conclusive finding that the said main sewers, proposed to be constructed under said proceeding, are of sufficient size and extent, so that the connection thereto by any such city, borough or township will not be burdensome upon said city, borough or township.

Capacity of sewer.

Service of notice.

Exceptions.

Approval.

Section 18. After the construction of such main, or trunk, sewer, any city, borough or township shall have the right, free of charge, to connect with said main, or trunk, sewer, by laterals, all sanitary sewerage of the sewer district in which said main, or trunk, sewer, is located, or for the use of which the same has been con-

Connections with main sewer.

structed; but all such connections shall be made under the supervision of the county engineer, and in the manner prescribed by the county commissioners.

By property owners.

Section 19. Any owner of property abutting on said main, or trunk, sewer, shall have the right, free of charge, to connect, by lateral sewers, all sanitary sewerage of his said property within said sewer district; but such connections shall be made under the supervision of the county engineer, and in the manner prescribed by the county commissioners.

Apportioning of cost, damages, etc.

Taxation.

Section 20. Wherever any main, or trunk, sewer, or portion thereof, or sewerage-disposal plant, constructed under the provisions of this act, is used for the carrying or disposal of sewerage from two or more sewer districts, the cost, damages and expenses of locating, constructing, maintaining, repairing and operating the same shall be borne by all sewer districts so using said main sewer, or portion thereof, or disposal plant, in proportion to their annual assessed taxable valuation for county purposes; but no sewer district shall be taxed for any main, or trunk, sewer, or portion thereof, or disposal plant, until said district has been accommodated with a main, or trunk, sewer, constructed under the provisions of this act, so that connections therewith can be made in said sewer districts without expenses burdensome upon cities, boroughs or townships forming said sewer district.

Connection with other main sewers.

Section 21. Whenever, in the location or construction of any such county sewers, it shall be deemed desirable to connect with and use any main, or trunk, sewer, or portion thereof, of any city, borough or township, it shall be lawful for the commissioners of the county, subject to the approval of the court of quarter sessions, to agree with such city, borough, or township for the use and repair and maintenance of such sewer, or sewers, or portions thereof, and what compensation shall be paid therefor, or in what proportions the cost of maintenance and repairs shall be borne.

Approved—The 5th day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

AN ACT

To provide for the immediate registration of all births and deaths throughout the Commonwealth of Pennsylvania, by means of certificates of births and deaths, and burial or removal permits; requiring prompt returns to the Central Bureau of Vital Statistics, as required to be established by the State Department of Health; and, in order to secure prompt and faithful registration of births, marriages, deaths, and diseases, of practitioners of medicine and surgery, of midwives, nurses, and undertakers, and of all persons whose occupation is deemed to be of importance in obtaining complete registration of births, deaths, marriages, and diseases throughout the State, as provided in section ten of an act, entitled "An act creating the Department of Health and defining its powers and duties," approved the twenty-seventh day of April, nineteen hundred and five, and providing penalties for violations of this act.

State Department of Health.

Registration of births, deaths, marriages and disease.

Section 1. Be it enacted, &c., That it shall be the duty of the State Department of Health to have charge of the State system of registration of births, deaths, marriages, and disease; to prepare the necessary methods, forms, and blanks for obtaining and preserving such records and to insure the faithful registration of the same in the townships, boroughs, cities, counties, and in the Central Bureau of Vital Statistics at the capitol of the State. The said department shall be charged with the uniform and thorough enforcement of the law throughout the State, and shall, from time to time, recommend any additional forms and amendments that may be necessary for this purpose.

Central Bureau of Vital Statistics.

State Registrar of Vital Statistics.

Term.

Salary.

Clerks, etc.

Section 2. That the Commissioner of Health, of the State Department of Health, shall have general supervision over the Central Bureau of Vital Statistics, which is hereby authorized to be established by said department, and which shall be under the immediate direction of the State Registrar of Vital Statistics, whom the said Commissioner of Health shall appoint, and who shall be a medical practitioner of not less than ten years' practice in his profession, and a competent vital statistician. The term of appointment of the State Registrar of Vital Statistics shall be four years, beginning with the first day of January, nineteen hundred and thirteen, and any vacancy occurring in the office of the State Registrar of Vital Statistics shall be filled by appointment of the said Commissioner of Health. The State Registrar of Vital Statistics shall receive a salary of four thousand dollars per annum. The State Department of Health shall provide for such clerical and other assistance as may be necessary for the purposes of this act, and may fix the compensation of persons thus employed within the amount appropriated therefor by the Legislature. Suitable apartments shall be provided for the State Bureau of Vital Statistics in the State capitol at Harrisburg, which shall be properly equipped with fireproof vault and filing cases for the permanent and safe preservation of all records made and returned under this act.

Registration districts.

Section 3. That, for the purposes of this act, the State shall be divided into registration districts as follows: Each city, borough, and township shall constitute a primary registration district, but two or more primary registration districts may be united into one registration district.

Local registrars.

Terms.

Section 4. That the Commissioner of Health shall appoint a local registrar of vital statistics for each registration district of the State. The term of office of local registrars shall be for four years, beginning with the first day of January, of the year nineteen hundred and thirteen, and their successors shall be appointed at least ten days before the expiration of their term of office:

Proviso.

Provided, however, That all local registrars now serving under appointment of the Commissioner of Health shall continue to serve until the expiration of their term for which they have been appointed.

Failure or neglect.

Removal.

Any local registrar, appointed by the said Commissioner of Health, who fails or neglects to efficiently discharge the duties of his office, or who fails to make prompt and complete returns of births and deaths as required hereby, shall be forthwith removed from his office by the said Commissioner of Health, and his successor appointed, in addition to any other penalties that may be imposed, under other sections of this act, for failure or neglect to perform his duty.

Deputy registrars.

Each local registrar appointed by the Commissioner of Health shall, immediately upon his acceptance of appointment as such, appoint a deputy whose duty it shall be to act in his stead in case of absence, illness, or disability, and who shall accept such appointment in writing, and who shall be subject to all rules and regulations governing the actions of local registrars;

Sub-registrars.

and when it may appear necessary for the convenience of the people in any township, a local registrar is hereby authorized, with the approval of the State Registrar, to appoint one or more suitable and proper persons to act as sub-registrars who shall be authorized to receive certificates, and to issue burial or removal permits, in and for such portions of the township as may be designated; and each sub-registrar shall note, over his signature, the date on which each certificate was filed, and forward all certificates to the registrar of the township within ten days, and, in all cases, before the third day of the following month:

Proviso.

Removals.

Provided, That all sub-registrars shall be subject to the supervision and control of the State Registrar, and may be by him removed for neglect or failure to perform their duties in accordance with the provisions of this act or the rules and regulations of the State Registrar, and they shall be liable to the same penalties for neglect of duties as the local registrar.

Section 5. That the body of any person whose death occurs in the State shall not be interred, deposited in a vault or tomb, cremated, or otherwise disposed of, or removed from or into any registration district, until a permit for burial, removal or other disposition shall have been properly issued by the local registrar of the registration district in which the death occurs. And no such burial or removal permit shall be issued by any registrar until a complete and satisfactory certificate of death has been filed with him as hereinafter provided: Provided, That when a dead body is transported by common carrier into a registration district in Pennsylvania for burial, then the transit and removal permit issued in accordance with the law and health regulations of the place where the death occurred, when said death occurs outside of the State of Pennsylvania, shall be accepted by the local registrar of the district, into which the body has been transported for burial or other disposition, as a basis upon which he shall issue a local burial permit in the same way as if the death occurred in his district, but shall plainly enter upon the face of the burial permit the fact that it was a body shipped in for interment, and give the actual place of death; but a burial permit shall not be required from the local registrar of the district in which interment is to be made when a body is removed from one district in Pennsylvania to another district in the State, for purpose of burial or other disposition, either by common carrier, hearse, or other conveyance, and no local registrar shall, as such, require from undertakers or persons acting as undertakers, any fee for the privilege of burying dead bodies.

Burial permit.

Proviso.

Transit permit.

Deaths outside the State.

Removals within the State.

Section 6. That stillborn children, or those dead at birth, shall be registered as births and also as deaths, and a certificate of both the birth and the death shall be filed with the local registrar in the usual form and manner; the certificate of birth to contain, in place of the name of the child, the word "stillbirth." The medical certificate of the cause of death shall be signed by the attending physician, if any, and shall state the cause of death as "stillborn," with the cause of the stillbirth, if known, whether a premature birth, and, if born prematurely, the period of uterogestation in months, if known, and a burial or removal permit in usual form shall be required. Midwives shall not sign certificates of death for stillborn children; but such cases and stillbirths occurring without attendance of either physician or midwife shall be treated as deaths without medical attendance, as provided for in section eight of this act.

Stillbirths.

Section 7. That the certificate of death shall contain the following items:—

Certificate of death.

(1) Place of death; including State, county, township, borough, or city. If in a borough or city, the ward, street and house number. If in a hospital or other institution, the name of the same to be given instead of the street, and the house number. If in an industrial camp, the name to be given.

(2) Full name of decedent. If an unnamed child, the surname preceded by "unnamed."

(3) Sex.

(4) Color or race; as, white, black (negro or negro descent), Indian, Chinese, Japanese, or other.

(5) Conjugal condition; as, single, married, widowed, or divorced.

(6) Date of birth, including the year, month and day.

(7) Age in years, months, and days.

(8) Place of birth, State or foreign country.

(9) Name of father.

(10) Birthplace of father, State or foreign country.

(11) Maiden name of mother.

(12) Birthplace of mother, State or foreign country.

(13) Occupation. The occupation to be reported of any person who had any remunerative employment, women as well as men.

(14) Signature and address of informant.

(15) Date of death, including the year, month and day.

(16) Statement of medical attendance on decedent, fact and time of death, including the time last seen alive.

(17) Cause of death, including the primary and immediate causes, and contributory causes or complications, if any, and duration of each.

(18) Signature and address of physician or official making the medical certificate.

(19) Special information concerning deaths in hospitals and institutions, and of persons dying away from home, including the former or usual residence, length of time, and place of death, and place where the disease was contracted.

(20) Place of burial or removal.

(21) Date of burial or removal.

(22) Signature and address of undertaker.

(23) Official signature of registrar, with date when certificate was filed, and registered number.

Statistical particulars.

The personal and statistical particulars (items one to thirteen), shall be authenticated by the signature of the informant, who may be any competent person acquainted with the facts.

Statement of facts.

The statement of facts relating to the disposition of the body shall be signed by the undertaker, or person acting as such.

Medical certificate.

The medical certificate shall be made and signed by the physician, if any, last in attendance on the deceased; who shall specify the time in attendance, the time he last saw the deceased alive, and the hour of the day at which death occurred. And he shall further state the cause of death so as to show the course of disease, or sequence of causes resulting in death, giving the primary and immediate causes, and also the contributory causes, if any, and the duration of each. Indefinite and unsatisfactory terms, indicating only symptoms of disease or conditions resulting from disease, will not be held sufficient for issuing a burial or removal permit; and any certificate containing only such terms as defined by the State Registrar shall be returned to the physician for correction and definition. Causes of death which may be the result of either disease or violence shall be carefully defined; and, if from violence, its nature shall be stated, and whether (probably) accidental, suicidal, or homicidal. And in case of deaths in hospitals, institutions, or away from home, the physician shall furnish the information required under this head (item nineteen), and shall state where, in his opinion, the disease was contracted.

Death without medical attendance.

Section 8. That in case of any death occurring without medical attendance, it shall be the duty of the undertaker to notify the registrar of such death, and, when so notified, the registrar shall inform the local health officer, and refer the case to him for immediate investigation and certification prior to issuing the permit: Provided, That when the local health officer is not a qualified physician, or when there is no such official, and in such cases only, the registrar is authorized to make the certificate and return from the statement of relatives or other persons having adequate knowledge of the facts: Provided further, That if the circumstances of the case render it probable that the death was caused by unlawful or suspicious means, the registrar shall then refer the case to the coroner for his investigation and certification. And in the city and county of Philadelphia it shall be the duty of the coroner to hold an inquest on the body of any deceased person who shall have died a violent death, or whose death shall be sudden, if said sudden death shall be after an illness of less than twenty-four hours, and no physician shall have been in attendance within said time, or if suspicious circumstances shall render the same necessary, which said suspicion shall first be sworn to by one or more citizens of said city. And any coroner whose duty it is to hold an inquest on the body of any deceased person, and to make the certificate of death required for a burial permit, shall state in his certificate the nature of the disease or the manner of death; and if from external causes or violence, whether (probably) accidental, suicidal,

Proviso.

Proviso.

Reference to the coroner.

Violent or sudden death.

Coroner's certificate.

or homicidal, as determined by the inquest, and shall, in either case, furnish such information as may be required by the State Registrar to properly classify the death.

Duty of undertaker.

Section 9. That the undertaker, or person acting as undertaker, shall be responsible for obtaining and filing the certificate of death with the local registrar of the district in which the death occurred, and securing a burial or removal permit prior to any disposition of the body. He shall obtain the personal and statistical particulars required from the person best qualified to supply them, over the signature and address of his informant. He shall then present the certificate to the attending physician, if any, or to the health officer or coroner, as directed by the local registrar, for the medical certificate of the cause of death and other particulars necessary to complete the record as specified in section eight. He shall then state the facts required relative to the date and place of burial over his signature and with his address, and present the completed certificate to the local registrar who will issue a permit for burial, removal, or other disposition of the body. The undertaker shall deliver the burial permit to the sexton, or other person in charge of the place of burial, before interring or otherwise disposing of the body, or shall attach the transit permit containing the registrar's removal permit to the box containing the corpse when the same is to be shipped by any transportation company, which permit shall accompany the corpse to its destination, and if the same be within the State of Pennsylvania, it shall be delivered to the sexton or other person in charge of the place of burial.

Filing of certificate.

Delivery of permit.

Wording of burial permit.

Section 10. That if the interment or other disposition of the body is to be made within the State, the wording of the burial permit may be limited to a statement by the registrar, and over his signature, that a satisfactory certificate of death having been filed with him as required by law, permission is granted to inter, remove, or otherwise dispose of the deceased, stating the name, age, sex, cause of death, and other necessary details upon the form prescribed by the State Registrar.

Duty of sextons.

Section 11. That no sexton, or person in charge of any premises in which interments are made, shall inter or permit the interment or other disposition of any body unless it is accompanied by a burial removal or transit permit as herein provided; and each sexton, or person in charge of any burial-ground, shall indorse upon the permit the date of interment, over his signature, and shall return all permits so indorsed to the local registrar of his district within ten days from the date of interment. He shall also keep a record of all interments made in the premises under his

Return of permits.

Record of interments.

charge, stating the name of the deceased person, place of death, date of burial, and name and address of the undertaker, which record shall at all times be open to public inspection.

Births.

Section 12. That all births that occur in the State shall be immediately registered in the districts in which they occur, as hereinafter provided.

Certificate

Section 13. That it shall be the duty of the attending physician or midwife to file a certificate of birth, properly and completely filled out, giving all of the particulars required by this act, with the local registrar of the district in which the birth occurred, within ten days after the date of birth; and if there be no attending physician or midwife, then it shall be the duty of the father or mother of the child, householder, or owner of the premises, manager or superintendent of public or private institution in which the birth occurred, to notify the local registrar within ten days after the birth of the fact of such a birth having occurred. It shall then, in such case, be the duty of the local registrar to secure the necessary information and signature to make a proper certificate of birth.

Contents of birth certificate.

Section 14. That the certificate of birth shall contain the following items:—

(1) Place of birth; including State, county, township, or town, village, or city. If in a city, the ward, street, and house number; if in a hospital or other institution, the name of the same to be given, instead of the street and house number.

(2) Full name of child. If the child dies without a name before the certificate is filed, enter the words, "died unnamed." If the living child has not been named at the date of filing the certificate of birth. the space for "full name of child," is to be left blank. to be filled out subsequently by a supplemental report. as hereinafter provided.

(3) Sex of child.

(4) Whether a twin, triplet, or other plural birth A separate certificate shall be required for each child in a case of plural birth, giving number of child in order of birth.

(5) Whether legitimate or illegitimate.

(6) Full name of father.

(7) Residence of father.

(8) Color or race of father.

(9) Birthplace of father.

(10) Age of father at last birthday, in years

(11) Occupation of father.

(12) Maiden name of mother, in full.

(13) Residence of mother.

(14) Color or race of mother.

(15) Birthplace of mother.

(16) Age of mother at last birthday, in years.

(17) Occupation of mother.

(18) Number of child of this mother, and number of children of this mother now living.

Certificate of physician or midwife.

(19) Certificate of attending physician or midwife as to attendance at birth; including statement of year, month, day, and hour of birth, and whether the child was alive or dead at birth. This certificate shall be signed by the attending physician or midwife, with date of signature and address; if there is no physician or midwife in attendance, then the father or mother of the child, householder, or owner of the premises, or manager or superintendent of public or private institution, or other competent person whose duty it shall become to notify the local registrar of such a birth, as required by section thirteen of this act.

(20) Exact date of filing in office of local registrar, attested by his official signature, and registered number of birth, as hereinafter provided.

All certificates, either of birth or death, shall be written legibly in unfading ink, and no certificate shall be held to be complete and correct that does not supply all of the items of information called for therein, or satisfactorily account for their omission.

When child is not yet named.

Section 15. That when any certificate of birth of a living child is presented without the statement of the given name, then the local registrar shall make out and deliver to the parent of the child a special blank for the supplemental report of the given name of the child, which shall be filled out as directed and returned to the local registrar as soon as the child shall have been named.

Registry of physicians, midwives, and undertakers.

Section 16. That every physician, midwife, and undertaker shall, without delay, register his or her name, address, and occupation with the local registrar of the district in which he or she resides, or may hereafter establish a residence, and shall thereupon be supplied by the local registrar with a copy of this act, together with such rules and regulations as may be prepared by the State Registrar, relative to its enforcement. Within thirty days after the close of each calendar year, each local registrar shall make a return to the State Registrar of all physicians and midwives who have been registered in his district during the whole or any part of the preceding calendar year: Provided, That no fee or other compensation shall be charged by local registrars to physicians, midwives, or undertakers, for registering their names under this section or making returns thereof to the State Registrar.

Proviso.

Officials of hospitals, almshouses, etc.

Section 17. That all superintendents or managers, or other persons in charge of hospitals, almshouses, lying-in or other institutions, public or private, to which persons resort for treatment of disease, confinement, or are committed by process of law, are hereby required to make a record of all of the personal and

Record.

statistical particulars relative to the inmates in their institutions at the date of approval of this act, that are required in the form of certificate provided for by this act, as directed by the State Registrar, and thereafter such record shall be by them made for all future inmates at the time of their admission. And in case of persons admitted or committed for medical treatment of disease, the physician in charge shall specify for entry in the record, the nature of the disease, and where, in his opinion, it was contracted. The personal particulars and information required by this section shall be obtained from the individual himself, if it is practicable to do so, and when they cannot be obtained they shall be secured in as complete a manner as possible from the relatives, friends, or other persons acquainted with the facts.

Blank forms, etc.

Section 18. That the State Registrar shall prepare, print and supply to all registrars, all blanks and forms used in registering, recording, and preserving the returns, or in otherwise carrying out the purposes of this act; and shall prepare and issue such detailed instructions as may be required to secure the uniform observance of its provisions and the maintenance of a perfect system of registration. And no other blanks shall be used than those supplied by the State Registrar.

Examination of certificates.

He shall carefully examine the certificates received monthly from the local registrars, and if any such are incomplete or unsatisfactory, he shall require such further information to be furnished as may be necessary to make the record complete and satisfactory; and all physicians, midwives, informants, or undertakers connected with any case, and all other persons having knowledge of the facts are hereby required to furnish such information as they may possess regarding any birth or death, upon demand of the State Registrar in person, by mail, or through the local registrar.

Binding and preservation.

He shall further arrange, bind, and permanently preserve the certificates in a systematic manner, and shall prepare and maintain a comprehensive and continuous index of all births and deaths registered,

Card-index.

the cards to show the name of child or deceased, place and date of birth or death, number of certificate, and the volume in which it is contained. He shall inform all registrars what diseases are to be considered as infectious, contagious, or communicable and dangerous to the public health, as provided by law, and by the regulations of the State Department of Health, in order that, when deaths occur from such diseases, proper precautions may be taken to prevent the spreading of dangerous diseases. It shall also be the duty of the State Registrar to collect, preserve, and tabulate records of all marriages performed within the State, and to tabulate and compile satistics of morbidity reports received by the Department of

Health, after such necessary methods and forms as shall be, from time to time, directed by the Commissioner of Health.

Duty of local registrar.

Section 19. That it shall be the duty of the local registrar to supply blank forms of certificates to such persons as require them; and he shall carefully examine each certificate of birth or death, when presented for record, to see that it has been made out in accordance with the provisions of this act and the instructions of the State Registrar, and, if any certificates of death are incomplete or unsatisfactory, it shall be his duty to call attention to defects in the return and to withhold issuing the burial or removal permits until they are corrected. If the certificate of death is properly executed and complete, he shall then issue a burial or removal permit to the undertaker: Provided, That in case the death occurs from some disease that is held by the State Department of Health to be infectious, contagious, or communicable and dangerous to the public health, no permit for the removal or other disposition of the body shall be granted by the registrar, except under such conditions as may be prescribed by the State Department of Health. If a certificate of birth is incomplete he shall immediately notify the informant and require him to supply the missing items if they can be obtained. He shall then number consecutively the certificates of birth and of death in two separate series, beginning with "number one" for the first birth and the first death in each calendar year, and sign his name as registrar in attest of the date of filing in his office. He shall also make a complete and accurate copy of each birth and death certificate registered by him, upon a form identical with the original certificate, to be filed and permanently preserved in his office as the local record of such death, in such manner as directed by the State Registrar, and he shall, on the fifth day of each month, transmit to the State Registrar all original certificates of death registered by him during the preceding month; and he shall, on the tenth day of each month, transmit to the State Registrar all original certificates of birth registered by him during the preceding month; and if no deaths or births occur in any month, he shall, on the fifth and the tenth days of the following month, report that fact to the State Registrar on a card provided for this purpose. For the proper conduct of health affairs within their respective districts, local health authorities shall have free access at all times to the records received and permanently filed by local registrars.

Certificates.

Issue of permits.

Proviso.

Incomplete certificate.

Record.

Report.

Fee for certificate.

Section 20. That each local registrar shall be entitled to be paid the sum of twenty-five cents for each birth or death certificate, properly and completely made out and registered with him, and correctly copied and duly returned by him to the State Registrar, as required by this act: Provided, That in cities of the first and second class, if the local registrar appointed by the Commissioner of Health occupies the office of city clerk, health officer, or any other local office, and receives a fixed salary as local officer, he shall be entitled to seven cents for each birth and each death certificate, properly and completely made out, registered with him, and correctly copied and duly returned by him to the State Registrar as required by this act; or, if the local registrar in any of such cities is not a local official, and does not receive a salary from the city but is furnished by the city with suitable office room for carrying out the duties of his office as local registrar, he shall, in lieu of fees, be entitled to ten cents for each birth and each death certificate properly and completely made out, registered with him, and correctly copied and duly returned by him to the State Registrar as required by this act; and, in case no births or deaths were registered during any month, the local registrar shall be entitled to be paid the sum of twenty-five cents for each report to that effect promptly made in accordance with this act. All amounts payable to local registrars in cities of the first and second class, where such registrars are receiving fixed salaries as local officers, or are furnished with office room as provided in this section, shall be paid by the State Treasurer upon certification by the State Registrar. And the State Registrar shall certify monthly to the State Treasurer and Auditor General, the number of births and deaths registered, with the names of the local registrars and the amounts due each at the rates fixed herein. All amounts payable to registrars, except in cities of the first and second class, as provided in this section, shall be paid by the treasurer of the county in which the registration districts are located upon certification by the State Registrar, and the State Registrar shall annually certify to the treasurers of the several counties the number of births and deaths registered, with the names of the local registrars, and the amounts due each at the rates fixed herein.

Proviso.

Fee for report.

Certificate to State Treasurer and Auditor General.

Section 21. That the State Registrar shall, upon request, furnish any applicant a certified copy of the record of any birth, death, or marriage registered under provisions of this act, for the making and certification of which he shall be entitled to a fee of fifty cents to be paid by the applicant; and any such copy of the record of a birth, or death, or marriage, when properly certified by the State Registrar to be a true copy thereof, shall be prima facie evidence in all courts and places of the facts therein stated. For any such search of the files and records, when no certified copy is made, the State Registrar shall be entitled to a

Certified copy of record.

Fee.

Evidence.

Search of record.

fee of fifty cents for each hour or fractional hour of time of search to be paid by the applicant. And the State Registrar shall keep a true and correct account of all fees by him received under these provisions and turn the same over to the State Treasurer.

Fees.

Section 22. That if any physician who, under the provisions of this act, is responsible for the medical certificate of death, shall neglect or refuse to make out and deliver to the undertaker, sexton, or other person in charge of the interment, removal, or other disposition of the body, upon request, the said medical certificate of cause of death hereinbefore provided for, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than five dollars nor more than fifty dollars; and if any physician shall knowingly make a false certification of the cause of death in any case, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than fifty dollars nor more than two hundred dollars.

Neglect or refusal of physician to make out certificate.

False certificate.

Fine.

And any physician or midwife in attendance upon a case of confinement, or any other person charged with responsibility for reporting births, in the order named in section thirteen of this act, who shall neglect or refuse to file a proper certificate of birth with the local registrar within the time required by this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than five dollars nor more than fifty dollars.

Neglect of refusal to file certificate.

Fine.

And if any undertaker, sexton, or other person acting as undertaker, shall inter, remove, or otherwise dispose of the body of any deceased person, without having received a burial or removal permit, as herein provided, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty dollars nor more than one hundred dollars.

Illegal interment or removal.

Fine.

And any registrar, deputy registrar, or sub-registrar who shall neglect or fail to enforce the provisions of this act in his district, or shall neglect or refuse to perform any of the duties imposed upon him by this act, or by the instructions and directions of the State Registrar, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than ten dollars nor more than one hundred dollars.

Official neglect of duty.

Fine.

And any person who shall wilfully alter any certificate of birth or death, or the copy of any certificate of birth or death on file in the office of the local registrar, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than ten dollars nor more than one hundred dollars, or be imprisoned in the county jail not exceeding sixty days, or suffer both fine and imprisonment, in the discretion of the court.

Illegal alteration of certificate.

Penalty.

And any other person or persons who shall violate any of the provisions of this act, or shall wilfully neglect or refuse to perform any duties imposed upon them by the provisions of this act, or shall furnish false information to a physician, undertaker, midwife, or informant, for the purposes of making incorrect certification of births or deaths, shall be deemed guilty of a misdemeanor, and upon conviction thereof be fined not less than five dollars nor more than one hundred dollars.

Violation of provisions of this act.

Fine.

And any transportation company or common carrier transporting or carrying, or accepting through its agents or employes for transportation or carriage, the body of any deceased person, without an accompanying permit issued in accordance with the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than fifty dollars nor more than two hundred dollars: Provided, That in case the death occurred outside of the State, and the body is accompanied by a certificate of death, burial or removal, or transit permit issued in accordance with the law or board of health regulations in force where the death occurred, such death certificate, burial or removal, or transit permit may be held to authorize the transportation or carriage of the body into or through the State.

Unlawful transportation of body.

Fine.

Proviso

Section 23. That local registrars are hereby charged with the strict and thorough enforcement of the provisions of this act in their districts, under the supervision and direction of the State Registrar. And they shall make an immediate report to the State Registrar of any violations of this law coming to their notice by observation, or upon complaint of any person, or otherwise. The State Registrar is hereby charged with the thorough and efficient execution of the provisions of this act in every part of the State, and with supervisory power over local registrars, to the end that all of the requirements shall be uniformly complied with. He shall have authority to investigate cases of irregularity or violation of law, personally or by accredited representative, and all registrars shall aid him upon request in such investigations. When he shall deem it necessary the Commissioner of Health shall report cases of violation of any of the provisions of this act to the Department of Justice of the Commonwealth.

Enforcement of the act.

Report of violations.

Authority of State Registrar.

Section 24. That all laws and parts of laws inconsistent with the provisions of this act are hereby repealed, and no system for the registration of births and deaths shall be continued or maintained in any of the several municipalities of this Commonwealth

Repeal.

other than the one provided for and established by this act.

Approved—The 7th day of June, A. D. 1915.

MARTIN G. BRUMBAUGH.

RULES AND REGULATIONS ADOPTED BY THE ADVISORY BOARD OF THE DEPARTMENT OF HEALTH AT HARRISBURG ON THE FOURTEENTH DAY OF JANUARY, 1915.*

No firm, person, or corporation shall expose for sale on any sidewalk or pavement or other exposed place any fruit, vegetables, or other articles of food which are eaten uncooked, unless such fruit, vegetables, or other articles of food are thoroughly screened and protected from flies and unless they are on elevated stands at least twenty-four inches above the level of the side-walk or pavement.

Every physician practicing in any portion of this Commonwealth, who shall treat or examine any person suffering from, or afflicted with, paratyphoid fever, anthracosis, arsenic poisoning, brass poisoning, carbon monoxide poisoning, lead poisoning, mercury poisoning, natural gas poisoning, phosphorus poisoning, wood alcohol poisoning, naphtha poisoning, bisulphide of carbon poisoning, dinitrobenzene poisoning, caisson disease (compressed-air illness), shall if said case shall be located in a township of the first class, a borough, or a city, forthwith make a report in writing to the health authorities of said township, city, or borough; and, if said case shall be located in a township of the second class, or a city, borough, or township of the first class not having a board of health or body acting as such, to the State Department of Health.

---

*Every person who violates any order or regulation of the Department of Health, or who resists or interferes with any officer or agent thereof in the performance of his duties in accordance with the regulations and orders of the Department of Health, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof, be punished by a fine of not more than one hundred dollars, or by imprisonment not exceeding one month, or both, at the discretion of the court. Section 16 of the act of April 27, 1905.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.		Subject.
1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility of Tuberculosis. 2. Purity of Milk 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr.	1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bathtubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 71. HARRISBURG, PA. JULY, 1915.

ON THE MEDICAL INSPECTION OF 469,000 SCHOOL CHILDREN OF PENNSYLVANIA.

Being a Report of the Inspection made in the School Year 1914-1915, substantially as presented before the Eighth Annual Congress of the American School Hygiene Association at San Francisco, on June 25, 1915

Within two years after the State Department of Health in the Commonwealth of Pennsylvania was organized, that is in 1907, we began making a complete sanitary survey of all our rural schools, carrying on the inspection twice during each school year and using for this work the rural Health Officers, for the most part intelligent laymen living in the smaller villages and towns of the State. A good deal seems to have been accomplished by making these sanitary inspections, and the improvement was noted that must have had some influence upon the health and lives of the pupils.

I had long been anxious to introduce Medical Inspection in the rural schools, having had a good deal of experience in this work while serving on the Board of Education in the City of Philadelphia in 1901 and 1902 when this procedure was first introduced there. Accordingly in 1910, after securing a ruling from the Auditor General and State Treasurer that the funds in the hands of the Department were granted in such a liberal way that we could apply a portion to this work, we started an experimental inspection in three of the large and densely populated counties in the central section of the State, Lancaster, Dauphin, and Cumberland. This trial inspection reached eighty-three Fourth Class Districts, entirely rural, with a total of 657 schools, for the most part in single room buildings, and a total of 14,434 pupils. The results of this first inspection showed less than half of the number of pupils to approach a condition which we roughly estimated as normal. Ten thousand of the total number were grouped as defective in some particular, and this group did not include pupils having unclean teeth.

The School Code Commission of 1911 may have been influenced by the sanitary surveys and probably were also influenced by this trial medical inspection when, during the session of the General Assembly of 1911, they recommended for adoption a revision and codification of the school laws now known as the Pennsylvania School Code, and in their revision made specific provision for both medical and sanitary inspection of schools throughout the Commonwealth. A somewhat similar School Code, approved by the Commission appointed for the purpose, had been submitted to the Legislature as early as 1909. Through a defect in the wording of this bill it became necessary for the Governor to veto it. The recommendations of a second Commission, adopted as a law in 1911, eliminated many of the mistakes of the draft of the first Commission, but when almost through the Legislature it was amended through the influence of certain organizations opposed to the medical inspection of children. By this means an optional clause was inserted in regard to medical inspection, providing that the school authorities in Districts of the Third and Fourth Class may determine annually by vote whether or not they will have medical inspection for the next school year.

The expense of medical inspection in Fourth Class Districts, that is, in townships and boroughs having a population of less than 5,000, was to be borne by the State Department of Health; in districts of the Third Class, population from 5,000 to 30,000, the expense was to be met by the school authorities. In districts of the Second and First Class, population from 30,000 to 500,000 and upward, where inspection was made mandatory, the district became responsible.

From 1911 on, all medical inspection of school children has been made under the specific provisions of the School Code. The provisions of the School Code with reference to medical inspection direct that special attention be paid to defective sight of pupils, defective hearing, and other disabilities and defects to be determined by the Commissioner of Health, and include a specific provision that written reports concerning these defects be sent to parents or guardians of the pupils through the teachers. Other sections of the Code dealing particularly with the inspection, require a careful sanitary survey of privies, water closets, urinals, cellars of buildings, water supplies, drinking vessels and utensils, and such additional sanitary examinations of the premises as the examiner deems necessary or as the regulations of the State Department of Health or of the local Board of Health, or the rules of the local Board of school directors may demand.

School medical inspectors under the law must be qualified practitioners of medicine and have been engaged in the practice of their profession for a period of at least two years.

It is very interesting to note how school authorities in districts of the Fourth Class and the public generally receive School Medical Inspection. Starting with an experimental trial in eighty-three districts covering only a total of 657 schools and 14,434 pupils in 1910, and continued under authority of the School Code in 1911, the work has grown rapidly. Those who opposed School Medical Inspection succeeded, as already mentioned, in having inserted in the School Code prior to its final adoption an optional clause permitting school authorities of the Third and Fourth Class districts to vote against acceptance. Out of something over 2,300 districts of the Fourth Class, some 1,600 exercised their option in 1911 and voted to have no medical inspection. It happened that in every county of the Commonwealth some districts had refrained from voting, so that those who voted against inspection had an opportunity to observe what was going on among their neighbors who had inspection. In 1912 but a few under 850 districts voted against inspection, thus increasing the opportunity to observe what was being done. In 1913 only 585 districts voted against inspection, in 1914 but 219 voted negatively.

TABULATION SHOWING THE GROWTH OF SCHOOL MEDICAL INSPECTION IN THE FOURTH CLASS DISTRICTS OF PENNSYLVANIA.

School Year.	No. districts inspected.	No. school buildings inspected.	No. pupils inspected.
*1910,	83	572	14,434
†1911-1912,	757	3,572	145.499
1912-1913,	1,469	7,375	305,372
1913-1914,	1,831	8,969	377,099
1914-1915,	2,156	11,036	469,199
		Total,	1,319,280

---

*Done experimentally by order of the Department of Health.

†Inspection (1911-1915) performed under the School Code in Districts not exercising their option to vote against it.

The time has passed for notices to reach the Department concerning the wishes of the school authorities during the school year 1915-1916. One hundred seventy-four districts have voted not to have medical inspection, hence we shall be required to perform inspection in 2,203 Fourth Class Districts during the ensuing school year.

It is interesting to note that eight of the counties in Pennsylvania have school boards in all of their Fourth Class districts unwilling to deny children the advantages of school medical inspection. These honor counties are Cameron, Clarion, Elk, Lackawanna, Montour, Union, Wayne, and Wyoming.

In twelve additional counties but a single district of the Fourth Class voted against school medical inspection. These counties are as follows: Bradford, Chester, Clinton, Delaware, Forest, Lawrence, Lycoming, McKean, Monroe, Pike, Potter, and Venango.

A most interesting thing connected with the growth of this inspection and the growth of sentiment in favor of it, or rather the removal of fear concerning it, is that each year since the School Code was adopted the League of Medical Freedom, an organization responsible for the insertion of the option clause in the Code, has written the School authorities of the Fourth Class districts of the Commonwealth and has sent them a blank form designed for notifying the Commissioner of Health that inspection is not desired. Despite this agitation, the figures show a steady decline of the influence of the League of Medical Freedom and similar organizations in opposition to school inspection and a steady growth of local sentiment in favor of accepting inspection. As already indicated the option was exercised in 1911 by 1,617 districts which voted against inspection; in 1912 the number of districts thus voting declined to 844; in 1913 the number fell to 585, and in 1914 it dropped still faster to 219, or a little over an eighth of the districts originally unwilling, and the fall continues.

There are 2,579 school districts in Pennsylvania grouped as follows:—

First Class Districts (500,000 and upward), ...	2
Second Class Districts (30,000 to 500,000), ...	14
Third Class Districts (5,000 to 30,000), ...	186
Fourth Class Districts (less than 5,000), ...	2,377

Along with this study of the growth of a sentiment in favor of school medical inspection in the 2,377 Districts of the Fourth Class we may consider the growth of school medical inspection in the 186 Districts of the Third Class, where the expense is borne by the district, beginning in 1911 with forty-five districts doing this work, increasing to fifty-one in 1912, to fifty-three in 1913, and to fifty-five in 1914. It is true that the same influence was exerted by the League of Medical Freedom in these districts as in the Fourth Class Districts and because they were impressed by the increased cost of running the schools, they may have considered the agitation promulgated by this League as of greater consequence. There were other conditions, however, that affected some communities. By the re-arrangement of the school taxing system the school income in some districts was lessened and in order to meet the necessary expenses of school operation, salaries of teachers, etc., a few districts were almost of necessity compelled to refrain from medical inspection merely for financial reasons.

On the whole the work has been well received and there are perhaps more school children examined each year in Pennsylvania than in any other state.

It is well worth while to examine the character of the defects found in pupils of Pennsylvania schools and the number of times defective vision, defective hearing, defective breathing, etc., may be met with. The following tables bring out these figures in considerable detail. It will be noted that some seventy per cent. of all children are defective and that nearly one fifth of all pupils examined show some error of vision sufficiently marked to prevent reading of Snellen's Chart from a distance of twenty feet as far down as a normal child would be expected to read it correctly. Nearly fifty-four per cent. of all children at school in the rural districts of Pennsylvania have some defect of the teeth, forty-five per cent. showing decayed teeth, and more than twenty-five per cent. have enlarged tonsils.

STATISTICS OF SCHOOL MEDICAL INSPECTION.

Fourth Class Districts, School Year 1914-1915.

Number of school buildings inspected,		11,036	
Number of schools inspected,		17,697	
Number of pupils inspected,		469,199	
Number pupils defective,	335,427		71.5%
Number pupils not defective,	133,772		
Number having single defects,	184,900		
Number having multiple defects,	150,527		
*Total number of defects,		551,671	
Defective pupils, treatment advised by letter.		304,619	90.8%

TABULATION OF DEFECTS.

VISION.

Pupils having defective vision,		83,748	17.8%
Right eye,	13,184		
Left eye,	14,750		
Both eyes,	55,814		
Pupils having other eye affections,		5,512	
Corneal scars,	1,717		
Blepharitis,	1,400		
Conjunctivitis simplex,	1,237		
Conjunctivitis follicularis,	7		
Iritis,	1		
Trachoma,	4		
Strabismus,	1,091		
Astigmatism (Special tests not made),	55		

HEARING.

Pupils having defective hearing.		15,600	3.3%
Right ear,	2,161		
Left ear,	2,791		
Both ears,	10,648		
Otorrhoea affecting hearing,		768	

---

*Counting both defective eyes or both defective ears as two defects, the total number of defects reaches 618,133.

BREATHING.

Pupils having defective breathing,		22,837	4.9%
Slight impairment,	15,009		
Serious impairment,	3,244		
Mouth breathing,	4,584		
Pupils having Adenoids (suspected),		6,713	
Pupils having Goitre,		879	

TEETH

Pupils having defective teeth,		252,174	53.7%
Dirty teeth,	39,466		8.4%
Decayed teeth,	212,708		45.3%
Gums diseased,		1,377	

TONSILS.

Pupils having enlarged tonsils,		123.222	26.3%
Slightly enlarged,	78,260		16.7%
Greatly enlarged,	43,548		9.3%
Acutely inflamed tonsils,	1,414		

CERVICAL GLANDS.

Pupils having enlarged cervical glands,		22,874	4.9%

TUBERCULOSIS.

Pupils reported as having tuberculosis,		789	
Tuberculosis of lungs,	264		
Tuberculosis of glands,	405		
Tuberculosis of bones,	57		
Tuberculosis of joints,	63		

NERVOUS DISEASES.

Pupils having nervous diseases of grave import,		755	
Chorea,	648		
Epilepsy,	107		

SKIN DISEASES.

Pupils having skin affections		6,296	
Scabies,	57		
Impetigo Contagiosa,	293		
Favus,	5		
Ring Worm,	46		
Head Lice,	4,878		
Body Lice,	4		
Lupus,	1		
Eczema,	366		
Acne,	345		
Other miscellaneous skin affections,	301		

DEFORMITIES.

Pupils reported as having deformities,		1,645	
Hunchback,	20		
Club-foot,	76		
Curved spine,	185		
Ankylosed joint,	31		
Harelip,	42		
Cleft plate,	140		
Miscellaneous deformities,	1,151		

MALNUTRITION.

Pupils with sub-normal nutrition,		8.578	
Slight,	7,544		
Marked,	1,034		

QUARANTINABLE DISEASES.

Pupils in school that should have been in quarantine,		56	
Chicken pox,	34		
Whooping cough,	22		

COOPERATION OF TEACHERS.

Among the most hopeful features of school inspection are the active interest taken by the teachers and the faithful records made by them of evidence of improvement after treatment is secured.

TEACHERS' FOLLOW-UP REPORTS, 1914-15.

Fourth Class School Districts.

Total number of schools having medical inspection,		17,697	
Total number of pupils inspected,		469,199	
Total number of pupils, treatment advised by letter,		304,619	
Teachers returning reports at end of term,		13,863	78.3%
Pupils included in reports returned,		242,542	
Pupils reported treated,	54,941		§22.6%
Pupils reported not treated,	160,249		66.1%
Pupils reported with no record of treatment,	27,245		11.2%
Pupils died during term,	107		
Pupils reported improved by treatment.		52,405	
Per cent. of treated pupils, improved,			95.4%
Pupils reported unimproved by treatment,		525	
Per cent. of treated pupils, unimproved,			0.9%
Pupils. results of treatment not stated by teacher,		2,011	
Per cent. of treated pupils. results not stated,			3.7%

DEFECTS TREATED.

	*Total.	Improved.	Unimproved.
Vision,	10,041	6,899	508
Hearing,	1,321	762	162
Breathing,	1,190	724	79
Teeth,	45,119	45,119	0
Tonsils,	6,844	4,373	298
Cervical glands,	1,153	665	40
Tuberculosis—lungs,	89	37	17
Tuberculosis—glands,	92	54	14
Tuberculosis—bones,	6	0	3
Tuberculosis—joints,	20	7	1
Nervous diseases,	168	88	34
Skin diseases,	150	116	8
Deformities,	12	5	1
Nutrition,	178	107	20
Miscellaneous defects,	2,641	2,506	43

---

§That is 22.6 per cent. of the pupils for whom returns are made in the reports of the teachers. It will be seen that for some 89,000 of those for whom treatment was recommended we really have no information concerning treatment or its outcome. If we had full reports the percentage of those treated probably would be at least as high as this.

*In many cases results of treatment were not stated by teachers reporting. hence total of "Improved" and "Unimproved" dose not equal "Treated."

An interesting observation may be made by arranging the percentage of certain defects in tabular form for four years, showing an apparent lessening of defects found.

	1911-12	1912-13	1913-14	1914-15
Total number inspected,	145,499	305,372	377,079	469,199
Percentage of defective pupils,	76.7	74.9	72.7	71.5
Percentage of pupils having defective vision,	29.0	27.0	24.2	17.9
Percentage of pupils having defective hearing,	3.4	2.9	3.3	3.3
Percentage of pupils having defective nasal breathing,	10.8	3.4	5.7	4.9
Percentage of pupils having enlarged cervical glands,	8.7	6.9	5.9	4.9
Percentage of pupils having enlarged tonsils,	35.1	28.5	28.0	26.2

It is difficult to give any adequate idea of the amount of good that may be accomplished by careful medical supervision of school children. Of course. we all see in this work conservation of the health of the pupil. Health workers occasionally are carried a little too far toward the side of lessening communicable disease and overlook the great value of inspection in helping rear a sturdier stock of children. The school man and the broad gauge health worker, however, see in the detection and early correction of defects the removal of life handicaps, the promotion of school progress, not only for the particular pupil, but through the progress of that pupil the advancement of an entire school that may have been held back because of the handicapped laggard.

One can hardly discuss school medical inspection without entering into the sanitary conditions which surround pupils, and for this reason, I take it, the School Code of Pennsylvania combines the two procedures under the one officer known as a Medical Inspector. The sanitary lessons that may be impressed by school inspection are far reaching in character and their influence cannot be determined with any degree of accuracy. The defects we find in pupils seem to be noted less often even with the number of inspections increasing. This would tend to show progress and that probably the sanitary lessons learned through health inspection are being appreciated even as rapidly as inspection itself. On every hand in districts where children get their first lessons in hygiene of the mouth, careful cleansing of the teeth, etc., we see a reflection of these lessons in the parents and grown up brothers and sisters at home. They take the lessons from these little folks and apply what we have impressed upon the younger children. Where school grounds and buildings are placed in proper sanitary condition, the improvement is soon reflected in the homes of the community. The barn yards, the privies, and the dwelling house all show evidence of this sanitary teaching and I am often told of pupils who make "fresh air cranks" out of their parents.

The school age is the susceptible age and I believe that there is no time in life when sanitary lessons are so quickly and so thoroughly appreciated as during early school life, and certainly there is no greater opportunity to reach two or three generations at one time than that given by very young children in the public schools.

Our inspectors invariably give short talk to pupils in the presence of the teacher before beginning the school inspection and perhaps if they were to accomplish nothing more than to fire young children with the enthusiasm of cleanliness of the mouth they would much more than earn for the State the small amount it costs to send a doctor to every school once or twice a year. In Pennsylvania we are required to send doctors to the schools in the rural districts. We have not yet reached the stage where we have enough money available to send follow-up nurses to the homes of pupils and to make frequent return visits to the school buildings. We shall some day come to this sort of further elaboration of our work and when we can do so, much more will be accomplished.

We continue to receive many encouraging communications from teachers and parents, as well as from school directors. The following note from Mrs. Sharpe, of Mill Creek Township, Erie County, is typical of the replies we get concerning improvements in pupils:

> "The majority of children examined were benefited by it. The trouble and expense of the examination of the school was more than repaid in the benefit derived by one child, No. 64,730. She was positively *stupid* in her recitations and was failing in her grade.
>
> "Upon the report of the Medical Inspector of our school she was operated on in our local hospital and notwithstanding her loss of time, she has completed with ease two years' work in less than one year's time; proving that a bright mentality can be fogged by special conditions that can be remedied and the helpfulness of this work."

The only distressing feature about school medical inspection at the present time is that the State is not in a position to do enough in the way of correcting defects found in pupils. Letters frequently come to us asking for help. In a great many instances we have been able to secure it either through the local poor authorities for the district in which the school is located or by referring the case through our school inspector or county medical inspector to some local charitable organization or to some society in the church with which the family happens to be connected. One of the saddest of these notes is herewith reproduced:

> "Dr. S. G. Dixon,
> "Dear Sir:
>
> "Yours at hand concerning my little girls. I am going to ask a favor of you. Please don't think I am a beggar, for I hate to ask you, but since the state has went this far, won't you please send me a little money to help in this? For I would like to care for my girls. They are two of my triplets. They are eight years old. We are poor, have had ten children. My husband is not strong. He has been sick and so much bad weather that we certainly would appreciated something from you. Please let me hear from you by return mail with something to help me or my girls. May God bless you for it."

Appeals of this sort necessarily show that in the Fourth Class districts great need will be found for providing relief and the time will certainly come when we shall have to provide for these schools the same sort of dental care and clinical care that is now being given in the large first class districts. Probably for dental work and eye work something in the line of a traveling clinic might be considered as a practical means of reaching the poor in remote sections of the State and offering them proper skill in remedying eye conditions and correcting insanitary conditions about the mouth and teeth and perhaps even in offering some operative interference in children suffering from adenoids or enlarged tonsils.

In order that a complete report of the work of school inspection may be presented the following statistical summary concerning the sanitary survey made by Medical Inspectors and Health Officers of the Department is also included. In explanation of this it should be added that in Fourth Class Districts which decline *medical* inspection a *sanitary* survey of the schools is nevertheless undertaken.

STATISTICS OF THE SANITARY INSPECTION OF SCHOOL BUILDINGS AND GROUNDS IN FOURTH CLASS DISTRICTS.

School Year 1914-15.

		Total.	Per Cent.
Districts having Sanitary Inspection by State Inspectors, .		2,353	
By School Medical Inspectors,	2,134		
By Health Officers or County Medical Inspectors,	219		
SCHOOL OR CLASS ROOMS.			
Total rooms Inspected by State Inspectors,		19,892	
By School Medical Inspectors,	17,823		
By Health Officers or County Medical Inspectors,	2,069		
Rooms having:			
Less than 15 sq. ft. floor surface per pupil,		1,416	7.1
Less than 200 cu. ft. air space per pupil,		2,728	13.7
Insanitary sweeping practised,		10,194	51.2
Dry dusting practised,		6,387	32.1
Light admitted in front of seated pupils,		1,088	5.5
Light area less than 20% of floor surface,		8,368	42.1
SCHOOL BUILDINGS.			
Total School Buildings Inspected by State Inspectors,		12,525	
By School Medical Inspectors,	11,036		
By State Health Officers,	1,489		
Single room buildings inspected,	10,026		
Multiple room buildings inspected,	2,505		
Buildings sanitary in all particulars,	189		1.5
Buildings insanitary in one or more points,	12,336		98.5
Buildings Having:			
No adjustable seats or foot stools in use,		8,843	70.6
Ordinary stoves in use, unjacketed,		4,842	38.6
Modern single room ventilating heaters in use,		2,705	21.6
No thermometer in use,		4,677	37.3
No provision to keep warm air moist,		7,996	63.8
No fresh air inlets at stove or furnace,		8,485	67.7
Fresh air inlets subject to contamination,		332	2.6
Mechanical (fan) system of ventilation in use,		146	1.7
Windows the only means of ventilation,		9,315	74.4
Not open during session,		903	7.2
Ventilation boards or shield not in use,		7,033	56.1
BUILDINGS OF MORE THAN ONE STORY,		1,585	
Exit doors do not open outward,		214	
No iron fire escapes provided,		1,371	
WATER SUPPLY ETC.			
Unsafe,		1,015	8.1
Menaced by surface drainage,	928		
Menaced by privy vault, cesspool, or manure seepage,	261		
Insanitary water container in use,		3,140	25.1
Container not properly cleaned and refilled,		5,587	44.6
Public or municipal water supply in use,		1,198	9.6
Sanitary drinking fountain in use,		1,162	9.3
Common drinking cup still in use,		4,664	37.2
Common towel in use,		4,814	38.4
PLAY GROUNDS.			
Insanitary,		1,568	12.5
PRIVIES.			
Separate accommodations not provided for each sex, ..		64	0.5
Entrances not legally screened,		5,803	46.3
Privies unclean,		2,816	22.5
Base not tightly closed,		6,409	51.2
Insanitary vaults,		9,000	71.8
Vaults full,		3,855	30.8
Lime or other disinfectant not used		6,152	49.1
FLUSH CLOSETS.			
Modern flush closets in use,		601	
Flush closets unclean,		10	
Flush closets improperly trapped and vented,		81	

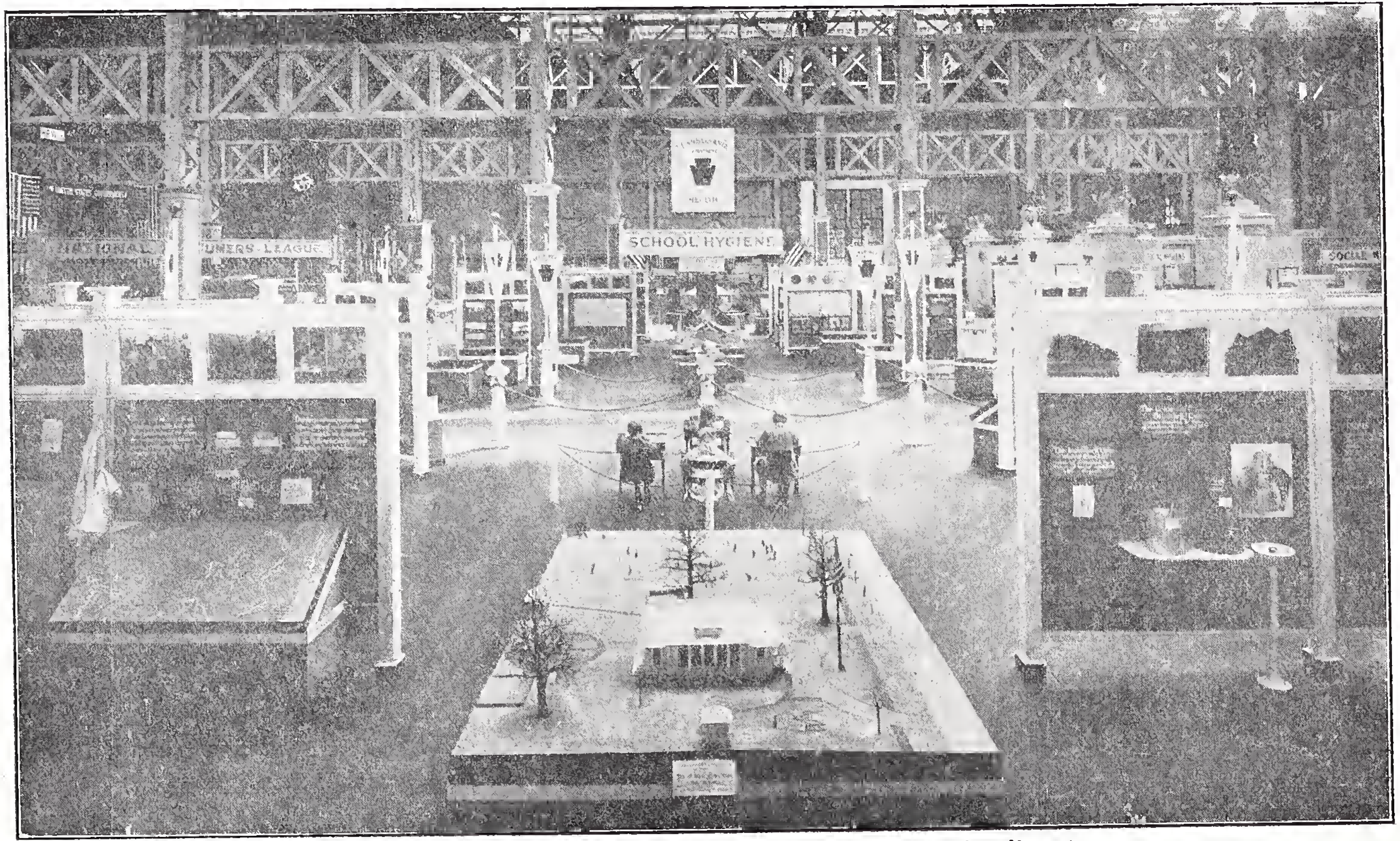


Plate I. Showing a part of the Exhibit of the Department at San Francisco.
In the Foreground the Model of the Layout of a Rural School.

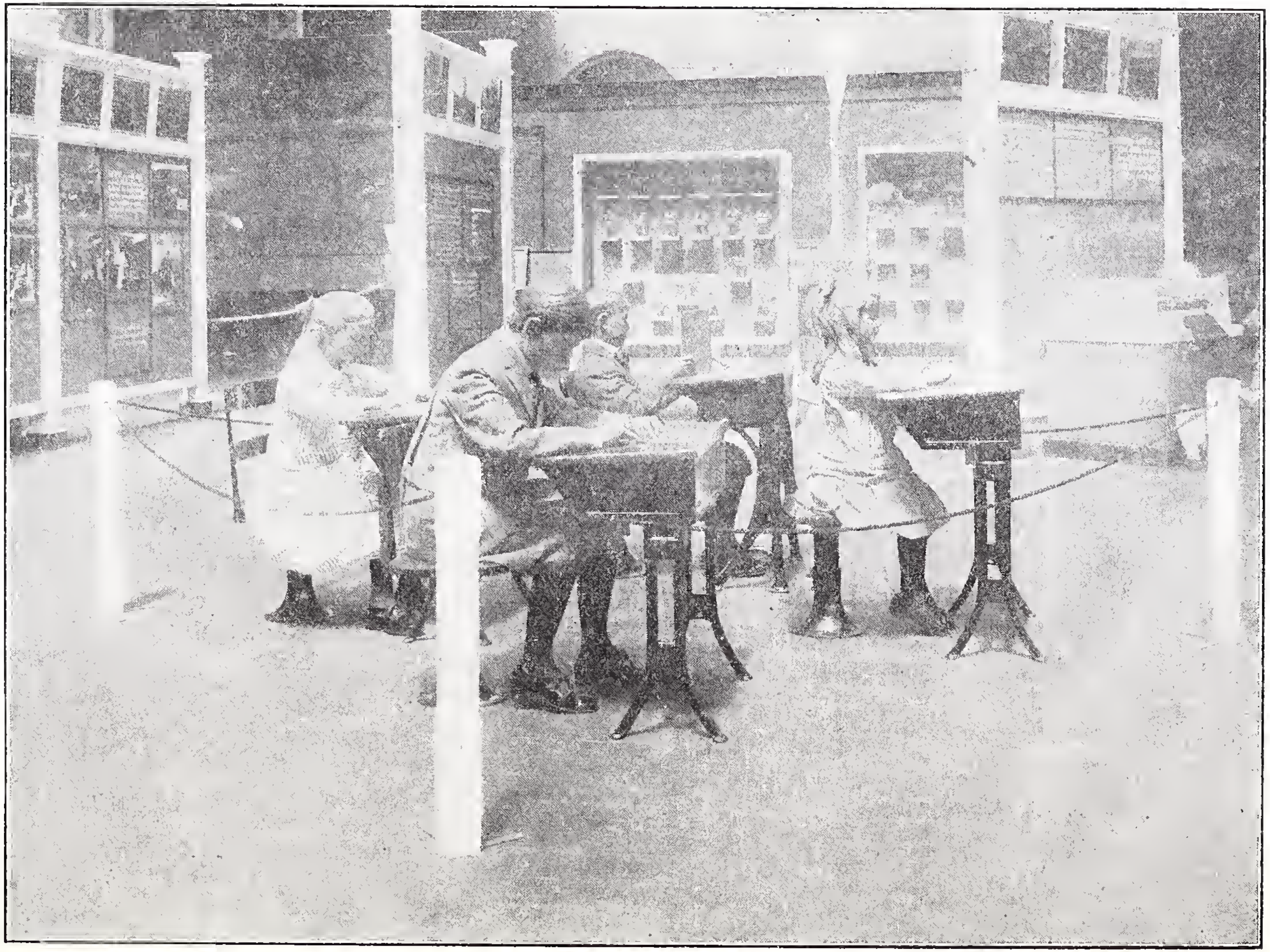
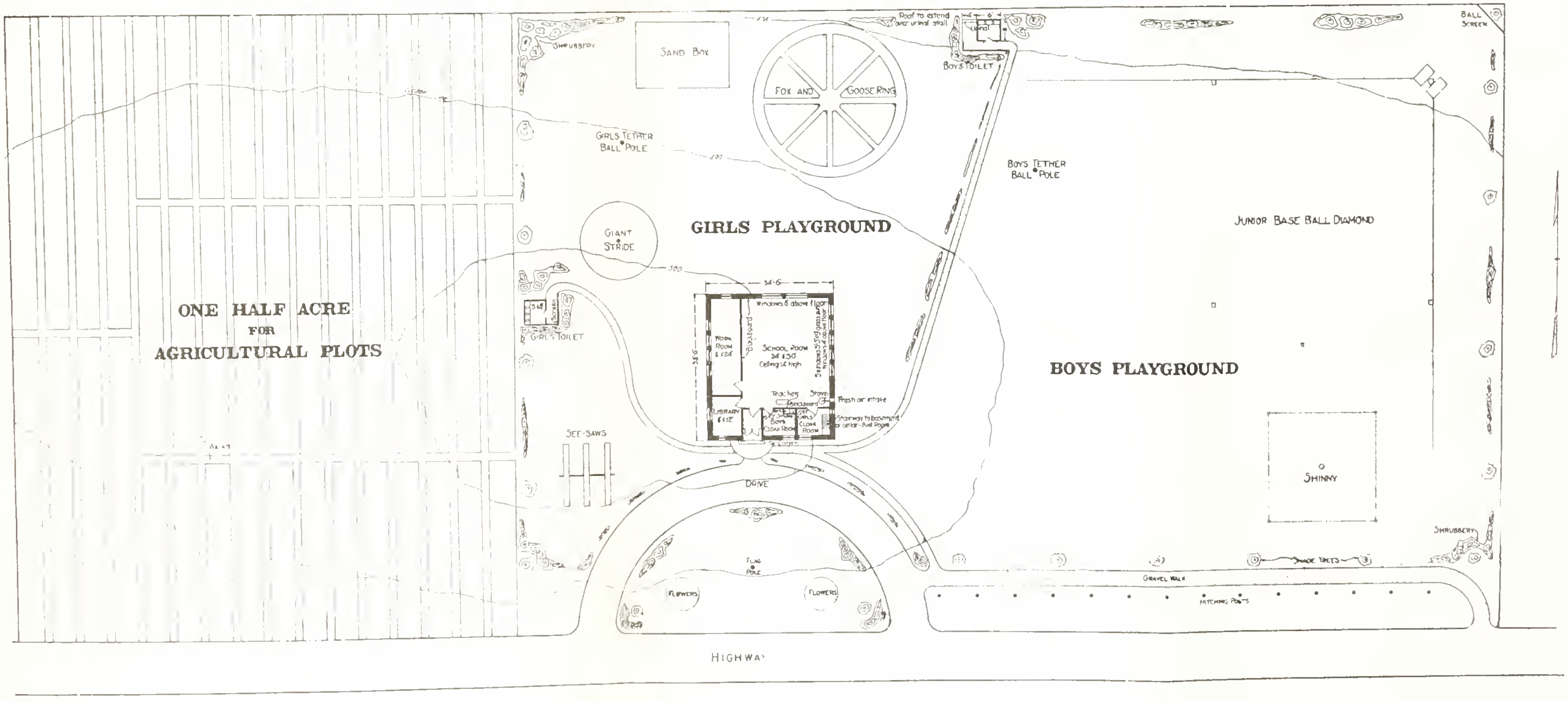


Plate II. Models Illustrating Good and Faulty Postures of School Children, According to the Chairs and Tables in Use.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
SCHOOL PLOT EXHIBITED AT SAN FRANCISCO 1915
RURAL SCHOOL BUILDING AND PLAY GROUND



The Department of Health was asked by the Commission charged with the representation of Pennsylvania at the Panama-Pacific International Exposition at San Francisco, during 1915, to prepare an educational public health exhibit and to present particularly rural school hygiene, tuberculosis sanatorium and dispensary work, and epidemic work, with particular reference to sanitary engineering. This request was somewhat belated, but an extensive exhibit was rather hurriedly prepared and installed in the Educational Building at the Panama-Pacific Exposition a short time after the formal opening.

In the exhibit of the Department great attention was attracted by the layout suggested in a relief model for a rural school built on a suitable site and provided with well designed grounds. This model appears in the photograph which shows that part of the exhibition hall and is here reproduced. To the plot plan from which this model was built we have added in the diagram a layout of half an acre arranged for teaching various phases of agriculture. It would seem that in a few years any rural school with suitable grounds could be laid out in a similar fashion. Probably the lessons impressed by the teacher in having the older boys and girls interpret such a suggestive plan and by having them add systematically year by year something toward the consummation of the plan would be worth more in the education and health of the pupils than would be much of the book knowledge acquired while bending over a desk.

In almost every rural community enough local pride and sentiment can be developed to have the pupils and those who have recently been pupils of the school gather together from time to time during the summer vacation season and take care of the school grounds and shrubbery. We are coming more and more to urge the use of all school buildings as recreation and civic centres. If buildings and grounds are made attractive and kept in good sanitary condition movements of this sort are much more apt to be successful.

The photograph also shows near the model of a school four figures prepared to demonstrate proper and improper postures taken by children in school according to the chairs and desks which are given them to use. This group attracted many visitors and is here again presented in another photograph with the details more obvious.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.		Subject.
1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility of Tuberculosis. 2. Purity of Milk 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr.	1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bathtubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 72. HARRISBURG, PA. AUGUST, 1915.

THE SANITARY ENGINEER IN PUBLIC HEALTH WORK.

A paper prepared for the Section of Preventive Medicine and Public Health of the Seventh Pan-American Medical Congress held at San Francisco June 17-21, 1915.

For efficiency, a public health organization in a representative form of government should, in my opinion, be directed by one versed in practical and sanitary medicine as well as in Sanitary Engineering; a little training in Entomology and Geology would add to the efficiency of the executive. The Director should be clothed with great police powers. The foundation of the organization should be a statistical division including vital, morbidity, and marriage statistics. Cooperating and depending upon this statistical division, a medical division should be established headed by a medical chief, with an experience of at least ten years in general and special hospital work and in epidemiology. The medical associates should be those fitted for bureau work and for field service throughout the territory over which the Department has jurisdiction.

Independent of the responsibilities generally recognized as belonging to a Medical Division, it is essential for the best work to have a system of hospitals for certain communicable diseases. In connection with the Department there should be a corps of Sanitary Engineers, a well-equipped laboratory with workers in Pathology, Bacteriology, and Chemistry.

Divisions for Tuberculosis Sanatoria, Dispensaries, and for the distribution of such Biological Products as are necessarily required should also be established.

Another important division should be one on Housing, headed by a broadly educated medical man or a Sanitary Engineer.

To promote economy and efficiency in all the other Divisions the Department must have a technical Purchasing and Bookkeeping Division.

With the divisions already mentioned it is desirable that there should be one on Foodstuffs and Drugs, including of course Milk Hygiene, and all these should be accompanied by a Division of Education and Publicity, for in a representative form of government the police medical laws cannot be readily enforced if they are far in advance of the intelligence of the people. The publications of the division should be both medical and literary, and as important as any is the utilization of the newspapers, as they are the only publishing channel that reaches every fireside.

My personal experience has also impressed me with the great necessity in doing school medical inspection and in handling communicable diseases, of having a well disciplined staff of licensed nurses; they may not only teach the children in schools but also teach the poor in their homes.

With this discussion of the suggested divisions of the organization we can better understand the place of the Sanitary Engineer in public health work.

Through the Statistical office, or Division, the Medical Division receives information of the undue prevalence in any community of the State of infectious diseases such as are transmitted by water, milk, or foodstuffs. The Sanitary Engineer often plays a most important part in overcoming the trouble.

While the medical inspector is analyzing samples of water and milk, and studying the movements of the individual persons who have been ill, and the character of the food supplied to them, the Sanitary Engineering staff traces the source of these supplies and their ultimate distribution in the infected territory. The Sanitary Engineer often definitely locates the source of infection, particularly when the public water supply is at fault. His services may always be employed with advantage in the enforcement of such sanitary reforms as may be required to wipe out the source of danger and in planning for the elimination of further dangers from it. It is only when the Engineering Department cooperates closely with the various other sub-divisions of a public health organization that the executive officer may properly control and combine their efforts, direct their several separate plans of investigation, harmonize their results and do the State's work economically and effectively.

The medical officer and the sanitary engineer must work together in field epidemics, particularly of water-borne disease; let this be direct or indirect. The medical officer takes precedence and reviews with local medical men or health officials both the probable source of infection and obscure cases of the disease. An engineer follows and enforces disinfection procedure as well as abatement of nuisances detrimental to health and such a general sanitary clean-up as may be required. From the coordinated studies of the medical and sanitary engineering services of a Department the executive officer naturally draws his inference upon which he bases judgment and plans reforms, determines results and anticipates further needs.

Profiting by the strictly medical experience gained in the suppression of epidemics of water-borne disease and the results of bacteriological research, the sanitary engineer investigates and studies the water supplies of the State generally and the watersheds of such supplies for the purpose of protecting and furnishing a potable water to the people and for the purpose of preventing the occurrence of epidemics in large centres of population.

A very large part of the activities of the sanitary engineer in a health organization consists in making those studies for the executive officer that enable him to determine when waterworks and sewerage works are properly planned in the interest of public health. It is from these preliminary investigations by the engineer that the executive officer determines whether the capacity of particular waterworks or sewerage works is sufficient for present and future needs and are planned with sufficient safeguards of the public health. In studies of this type the engineer frequently needs the aid of laboratory skill and scientific interpretation, in order to enable the executive officer to advise concerning the type of construction and character of the plant most likely to bring about desired purification or pass final judgment on plans submitted.

Another important activity of the engineer in a health organization is supervision of water and sewage works after they are built in order to hold responsible local officials up to the highest degree of perfection in the care and operation of the plant. Just as a chain is no stronger than its weakest link so is the water plant or sewage plant no safer than the staff of its operators. Proper supervision may prevent disastrous results and in this supervision the engineer constantly needs the laboratory worker associated with him at his elbow.

In Pennsylvania no system of water supplies or sewers and no sewage disposal plant may be constructed or extended until the plans and specifications therefor have first been submitted to the Department of Health, carefully studied by the Division of Sanitary Engineering, and approved by the Commissioner of Health.

The Sanitary Engineer also patrols the watersheds, and in his patrol of the watersheds, seeks out and abates all possible sources of pollution. In the general work the medical staff of the Department follows up the work of the engineer by consulting and studying laboratory reports and by careful supervision of the prevalence of disease in the various municipalities and water districts.

Coordination is the key-note of the successfully organized public health department and the sanitary engineering division is one strong arm in such an organization, and when properly coordinated and utilized is of incalculable value. Let us take for example the plan of organization worked out in the Commonwealth of Pennsylvania. You will note in the scheme of organization that the engineer derives his authority directly from the Commissioner of Health and reports directly to him; that he is relieved of the details of purchasing his supplies and doing his own bookkeeping; that he works side by side with the Medical Division and the other important executive divisions of the organization, any branch of which may instantly be called on for aid and cooperative work.

The Pennsylvania Department of Health in the very beginning of its activities conceived the present plan of organization and later worked it out in detail. The Commissioner of Health has never at any time hesitated to use the Engineering Division or any other Division of the Department for the purpose of ferreting out public health troubles.

The need for a sanitary engineer in a public health organization is now generally recognized. A number of our states have one or more sanitary engineers connected with their public health organization and in several of the other states the question is being considered. Ten years ago Pennsylvania recognized this need and in the reorganization of her public health force which occurred at that time, legal provision was made for the employment by the Commissioner of Health of such engineering assistance as might be necessary to carry on the work of the Department.

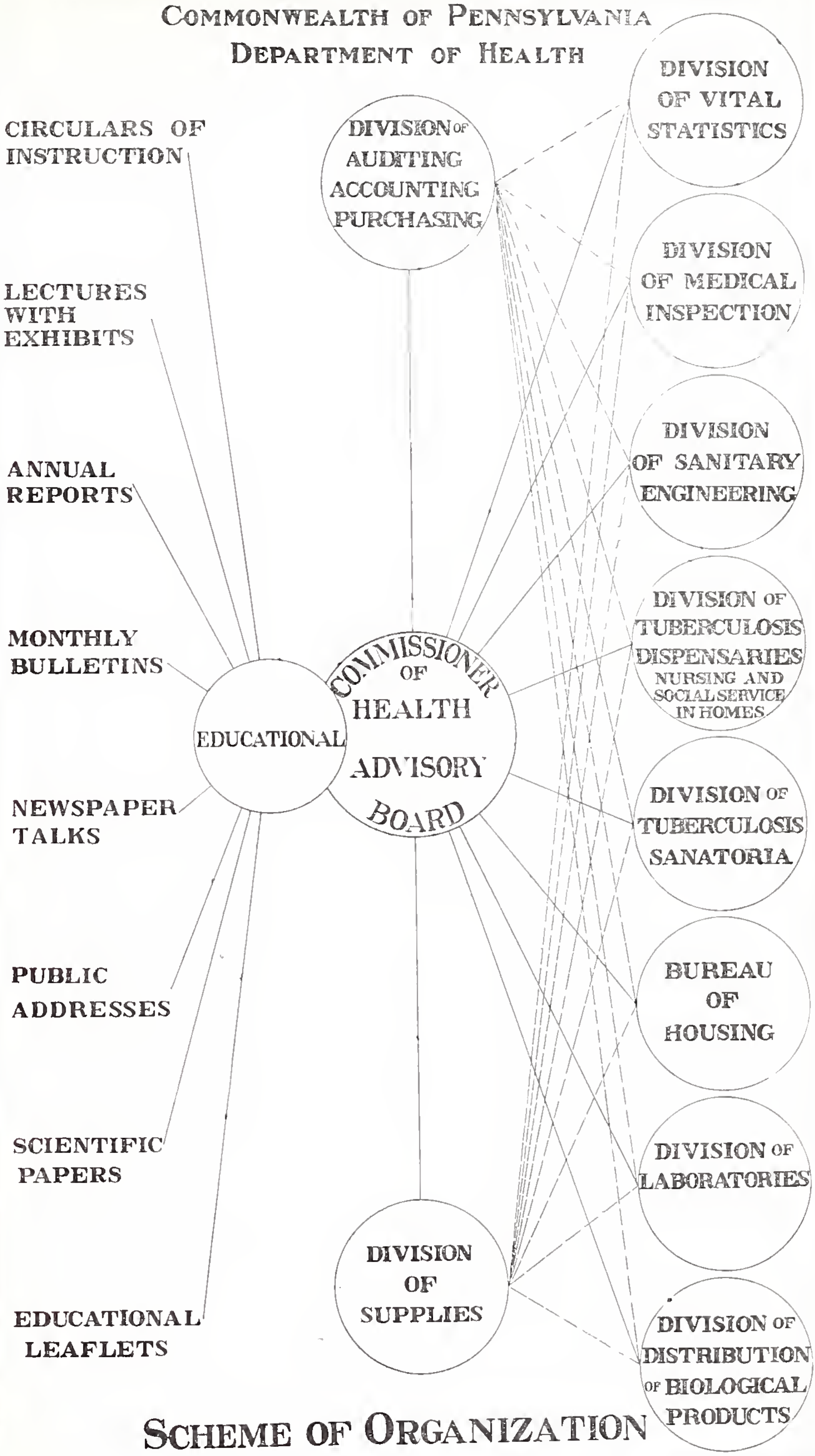
A Chief Sanitary Engineer was appointed and an Engineering Division organized in the Department. This Division has increased in size until now it contains more than one hundred trained employees, all giving their entire time to the sanitary features of Pennsylvania's health work and laboring with the medical forces and other forces of the Department.

With a population of more than eight millions and an extremely varied surface area of about forty-five thousand square miles, Pennsylvania has need for this engineering organization which is, I believe, larger than that maintained by any other of our states.

The protection of the purity of the waters of the State is the fundamental work of the Engineering Division. This is accomplished by preventing the entrance of sewage into the streams and by the purification of water furnished to the public from polluted supplies or else by requiring that water be obtained from uncontaminated sources.

The importance of this work is self-evident, as an adequate supply of pure water is necessary in every municipality. The urban popu-

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH


CIRCULARS OF INSTRUCTION
LECTURES WITH EXHIBITS
ANNUAL REPORTS
MONTHLY BULLETINS
NEWSPAPER TALKS
PUBLIC ADDRESSES
SCIENTIFIC PAPERS
EDUCATIONAL LEAFLETS
EDUCATIONAL
DIVISION OF AUDITING ACCOUNTING PURCHASING
COMMISSIONER OF HEALTH
ADVISORY BOARD
DIVISION OF SUPPLIES
DIVISION OF VITAL STATISTICS
DIVISION OF MEDICAL INSPECTION
DIVISION OF SANITARY ENGINEERING
DIVISION OF TUBERCULOSIS DISPENSARIES NURSING AND SOCIAL SERVICE IN HOMES
DIVISION OF TUBERCULOSIS SANATORIA
BUREAU OF HOUSING
DIVISION OF LABORATORIES
DIVISION OF DISTRIBUTION OF BIOLOGICAL PRODUCTS

SCHEME OF ORGANIZATION

lation of our country is increasing and with that comes a proportionate increase in the amount of water used by each individual. The quantity of water which can be procured from unpolluted sources is generally insufficient for the needs of our modern cities. It follows, therefore, that the large surface streams will be used more and more as sources of public water supply. These streams are usually contaminated and their uncontrolled use would cause an increase in the occurrence of water-borne diseases, such as typhoid fever and bacillary dysentery. While it is true that polluted water can be purified it is equally true that purification works occasionally fail in their function and, therefore, cannot be considered an adequate safeguard. The only sure remedy is to remove the cause and to restore all streams to as cleanly a condition as is practicable by the employment of modern methods of stream protection; in other words, by preventing the discharge of raw sewage and other polluting material into the streams.

A law passed by the General Assembly in 1905, entitled "An Act to Preserve the Purity of the Waters of the State for the Protection of the Public Health," furnishes the Pennsylvania Department of Health with the necessary authority for carrying on this great work. The Engineering Division bases its operations upon the provisions of this law.

This Act prohibits the discharge of sewage by individuals into any stream or other body of water in the State and also requires all municipalities wishing to establish sewer systems or desiring to extend existing sewer systems to secure a permit therefor issued upon unanimous agreement of the Governor, Attorney General, and Commissioner of Health. These permits stipulate such conditions as may be necessary to subserve the general interests of the public health.

This law also forbids the construction of waterworks for the supply of water to the public, whether by companies or by municipal corporations, unless a written permit shall have first been obtained from the Commissioner of Health and under such stipulations that the supply may not be prejudicial to public health.

A great deal of study and investigation of an engineering nature is required for carrying out the provisions of this law. The permits issued by the State authorities cannot be arbitrary decisions. They must, to be of value and to carry out the intent of the law, be based upon sound engineering judgment. Over two thousand separate studies and engineering investigations have already been made in connection with the administration of this law. From the organization of the Department to the present time sewerage conditions have been studied in over four hundred and fifty separate municipalities and townships in the State and nine hundred and forty permits granted as prescribed by law. Everyone of these permits was issued after a personal investigation by officers of the Department and contains such stipulations as were considered essential for the protection of the public water supplies and necessary to subserve the general interests of the public health. Two hundred and twenty-five modern comprehensive sewer systems for municipalities and ninety-seven sewage treatment plants have been built under these permits and many others are about to be constructed. Seven hundred and eighty permits for waterworks construction have been issued controlling the supply of water to over seven hundred separate municipalities or townships. A field investigation and study were also made in each case and the permits included such conditions as were necessary to protect the public.

One hundred and seventeen water filtration plants are in operation supplying purified water under permits from the Department of Health to municipalities having a total population of over four millions or approximately half of the entire population of the State.

The activities of the Department do not cease after a water filtration or sewage treatment plant has been built and placed in operation. Weekly reports covering the details of the daily operation of the works are regularly filed with the Department of Health and these reports are carefully studied by experts and suggestions for improvements are frequently sent to the different municipalities. In addition, a force of trained engineers is constantly traveling about the State inspecting these plants at irregular intervals. These precautions are taken in order that the public may derive the benefits that can only be secured when the works are efficiently maintained. Their value has been proven many times as the representatives of the Department frequently find that, because of carelessness or ignorance on the part of the operators, the precautionary measures provided by the designer of the plant and approved by the State have been neglected or entirely forgotten.

The Department's attention is directed to the discharge of sewage not only from public systems but also from individual houses in the townships of the State. A large force of inspectors is engaged on a house to house inspection in the rural districts and especially upon the watersheds of the streams used as a source of water supply. Nearly half of the watershed area of the twenty-eight thousand miles of streams in Pennsylvania has been covered in these inspections. In case of pollution of State waters from an overflowing privy or cesspool, from a barnyard, or from kitchen or bath wastes the inspection seeks to bring about an abatement of the pollution, invoking the aid of the Courts, if necessary. The aim of the Department in this matter is not merely to secure a temporary abatement but to require the installation of such apparatus or the adoption of such measures as will cause a permanent abatement of the menace.

During the year 1914 alone 104,587 properties on 371 different watersheds in the State were inspected. Of this number 25,300 were in an unsatisfactory condition; 13,107 pollutions were abated on these properties in the course of the year.

From the beginning of the work of the Department to the close of the year 1914 a total of 739,437 properties had been inspected or reinspected and 117,168 abatements had been secured through efforts of officers of the Department on properties scattered throughout the State. The effect of this work on communities drinking water from streams which previously had been contaminated by these pollutions must be counted as one of the factors that has reduced the general death rate and especially the death rate from typhoid fever.

The Engineering Division also aids some of the public institutions of the State. Most of these have extensive waterworks and sewerage systems and a number of them have been designed and constructed under the supervision of the Engineering Division, by means of separate appropriations secured from the Legislature for the work. These systems not only protect the health of the patients in the institutions and safeguard the streams below, but they have many times served as models for similar plants for villages and boroughs throughout the State.

A great reduction in the death rate from many diseases has been noticeable in Pennsylvania. The reduction in the typhoid fever death rate has been especially marked and in the ten year period since the State Department of Health was organized has resulted in the saving of thousands of lives to the State.

DEATHS FROM TYPHOID FEVER AND LIVES SAVED.

1906 to 1914, Inclusive.

Year.	Typhoid deaths.	Rate per 100,000.	Calculated deaths. 1906 rate obtaining.	Saving as compared with 1906.
1906	3,917	54.8		
1907	3,538	48.6	3,989	451
1908	2,450	32.4	4,064	1,614
1909	1,712	22.7	4,140	2,428
1910	1,892	24.6	4,216	2,324
1911	1,716	21.9	4,291	2,575
1912	1,310	16.5	4,367	3,057
1913	1,470	18.1	4,443	2,973
1914	1,071	13.0	4,518	3,447
			Total saved,	18,869

In 1905, when the Department began its operations, Pennsylvania was a typhoid ridden state. The purification of the water supplies and the improvement in general sanitary conditions have been factors of tremendous influence in bringing about this marvelous reduction in the number of deaths from disease so often waterborne in origin. This combining of work essentially engineering in nature with medical work brings results and proves the value and propriety of utilizing the sanitary engineer in a public health organization.

PENNSYLVANIA HEALTH BULLETINS

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacilluz on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria: How it is Caused, and How to Get Rid of It.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bath Tubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March, 1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April, 1915,	Diphtheria and Diphtheria Antitoxin.
69.	May, 1915,	Flies as a Factor in Infant Mortality.
70.	June, 1915,	Pennsylvania Health Legislation of 1915.
71.	July, 1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	August, 1915,	The Sanitary Engineer in Public Health Work.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 73. HARRISBURG, PA. SEPTEMBER, 1915.

QUARANTINE OF THE HOME AS PRACTISED BY THE DEPARTMENT OF HEALTH IN PENNSYLVANIA.

A paper read in the General Meeting of the Medical Society of the State of Pennsylvania, Philadelphia Session, September 22, 1915.

Quarantine of the home as practised by the Department of Health in Pennsylvania has its legal basis in mandatory acts of the Commonwealth and is supplemented by regulations of the Advisory Board of the State Department of Health officially promulgated. Certain minimum standards are fixed by law for most communicable diseases and these minimum standards apply everywhere in the State, and they may not be abridged by local health authorities. Regulations of the Advisory Board of the State Department of Health are equally binding on all health authorities throughout the Commonwealth.

Every municipality, however, having local health authorities may go as much beyond these minimum requirements set forth in the Acts of Assembly and the regulations of the Advisory Board of the State Department of Health "as they may in good faith declare the public safety and health demand."

Attempts have been made in Pennsylvania both by the Legislature and by the Advisory Board of the State Department of Health to determine a method of quarantine that will give the maximum protection of public health with the minimum disturbance of public convenience. Early in the history of the present Department of Health it was recognized that quarantine, as commonly interpreted and as ordinarily established for smallpox and yellow fever and kindred diseases, was entirely too drastic a type of quarantine for general use in the contagious diseases that usually destroy many more lives than do these more frightful plagues.

As early as 1907 the Advisory Board, called together for the purpose, adopted rules and regulations making specific provision for two types of quarantine and setting forth the conditions under which each type of quarantine should be applied. Specific provision was made under the modified quarantine, then, for the first time precisely defined in this State, for the wage earner to continue his occupation from houses placarded for certain communicable diseases.

The regulation adopted on July 25, 1907, is as follows:—

ABSOLUTE QUARANTINE.

The following diseases require absolute quarantine: Bubonic plague, cholera, leprosy, smallpox, yellow fever, and typhus fever, and quarantine shall be continued until raised by an authorized agent of the Department of Health.

Absolute quarantine includes:—first, absolute prohibition of entrance to or exit from the building or conveyance except by officers or attendants authorized by the health authorities, and the placing of guards if necessary to enforce this prohibition; second, the posting of a warning placard, stating the name of the disease, in a conspicuous place or places on the outside of the building or conveyance; third, the prohibition of the passing out of any object or material from the quarantined house or conveyance; fourth, provision for conveying the necessaries of life under careful restrictions to those in quarantine.

MODIFIED QUARANTINE.

The following diseases require modified quarantine: Epidemic cerebrospinal meningitis, diphtheria, measles, German measles, chicken pox, mumps, whooping cough, scarlet fever, and relapsing fever.

Modified quarantine includes: first, prohibition of entrance and exit, as in absolute quarantine, except for certain members of the family authorized by the health authorities to pass in and out under certain definite restrictions; second, the placing of a placard as in absolute quarantine; third, isolation of patient and attendant; fourth, prohibition of the carrying out of any object or material unless the same shall have been thoroughly disinfected.

Wage Earner's Permit. The wage earner is allowed, under modified quarantine, to continue work provided he or she at no time comes in contact with the patient, or those having the care of the patient, and that he or she has a room entirely separated from the patient and those attending the same, as provided in instructions on isolation. In permitting householders and wage earners to continue work when cases of diphtheria, scarlet fever, or epidemic cerebrospinal meningitis appear upon the premises, the greatest care should be taken to prevent the carrying of the infection, and such a person shall not be employed in an establishment in which is conducted the production, sale, or manufacture of fabrics, wearing apparel, upholstered furniture, bedding (including also all processes of cleaning or repairing such articles), food stuffs, tobacco in any form, soda water, "soft drinks," candy, etc. If so employed he should leave the infected premises after taking an antiseptic bath and having his clothing disinfected and thereafter remain away from the premises up to the time of the recovery, death, or removal of the last patient and the disinfection of the household.

At the same session of the Advisory Board other supplementary measures were outlined in some detail as a part of quarantine procedure and suitable for application in diseases not requiring absolute quarantine, notably isolation.

Absolute isolation as promulgated includes: first, the confinement of the patient and attendants to one apartment or suite of apartments, to which none but authorized officers or attendants shall have admission; second, the prohibition of passing out of the sick room any object or material, until the same has been thoroughly disinfected; third, protection of the air of the house by hanging a sheet, kept constantly moist with a disinfectant solution, over the doorway of the patient's room or rooms and reaching from the top of the door frame to the floor.

Modified isolation includes:—first, the confinement of the patient and attendants to one room or suite of rooms to which none but authorized officers or attendants shall have admission, but allowing the attendants to pass out of the room after disinfection of person and complete change of clothing; second, the prohibition of passing any object or material out of the sick room until it has been disinfected; third, protection of the doorway as before.

Special isolation includes:—first, prohibition of patient from attending any place of public assemblage; second, the providing of separate eating utensils for the patient; third, prohibition of sleeping with others or using the same towels or napkins.

At the same time full definition was given to the various types of disinfection.

Disinfection may be either complete or partial.

By *Complete Disinfection* is meant disinfection during illness, under direction of the attending physician, of the patient's body, of all secretions, and of all discharges of the patient, and of all articles of clothing and utensils used by the patient; and after recovery, death, or removal, the disinfection of walls, wood work, furniture, bedding, etc., by the Health Officer.

By *Partial Disinfection* is meant immediate disinfection of discharges or excretions from the patient, the dressings used in the treatment, the clothing used about the infected area, the beds and bedding used by the person afflicted, and if requested by the family physician or the householder, disinfection of the room occupied by the patient during illness.

In a tabular form we have conveniently set forth the type of quarantine required, the disease for which isolation only is deemed advisable, and have shown where placards are required by law and the various periods of exclusion from school:—

INSTRUCTIONS FOR THE MANAGEMENT OF CASES OF COMMUNICABLE DISEASE AND CONTACTS.

Diseases to be Reported.	Quarantine.	Isolation.	Disinfection.	Placard.	Minimum quarantine period.	Period of exclusion from school (a).	Remarks.
Actinomycosis, ...	....	....	Partial	....	....	....	
Anterior Poliomyelitis, ...	....	Special	Partial	....	....	....	Destruction of suctorial insects and vermin.
Anthrax, ...	....	Special	Partial	Placard	(b).	During illness. (f). (g).	
Bubonic Plague, ...	Absolute	Absolute	Complete	Placard	(b).	During illness. (f)., ...	Destroy all vermin (rats, lice, etc.)
Cerebrospinal Fever (Epidemic), ...	Modified	Modified	Complete	Placard	(b).	During illness. (f). (g).	
Chicken Pox, ...	Modified	Modified	Complete	Placard	16 days.	16 days (f). (h).	
Cholera, Asiatic, ...	Absolute	Absolute	Complete	Placard	(b).	(f).	Disinfect stools and urine.
Diphtheria, ...	Modified	Absolute	Complete	Placard	21 days (c).	During illness. (c).	Immunize all contacts with antitoxin.
Epidemic Dysentery, ...	....	Special	Partial	....	....	....	Disinfect stools and urine.
Erysipelas, ...	....	Special	Partial	....	....	During illness.	
German Measles, ...	Modified	Modified	Complete	Placard	16 days.	16 days (f). (h).	
Glanders, ...	....	Special	Partial	Placard	....	During illness.	
Hydrophobia, ...	....	Special	Partial	....	....	....	Pasteur treatment through County Aid (Act of April 22, 1913).
Impetigo Contagiosa, ...	....	....	Partial	....	....	(k).	
Leprosy, ...	Absolute	Absolute	Complete	Placard	(b).	(f).	
Malarial Fever, ...	....	....	....	Placard	....	....	Exclude all mosquitoes.
Measles, ...	Modified	Modified	Complete	Placard	16 days.	16 days. (f). (h).	
Mumps, ...	Modified	Special	Complete	Placard	16 days.	16 days. (f). (h).	
Ophthalmia Neonatorum, ...	....	Special	Partial	....	....	....	
Paratyphoid Fever, ...	....	Special	Partial	Placard*	....	....	See Typhoid Fever.
Pellagra, ...	....	Special	Partial	....	....	....	
Pneumonia (true), ...	....	Special	Partial	....	....	....	
Puerperal Fever, ...	....	Special	Complete	....	....	....	
Relapsing Fever, ...	Modified	Modified	....	Placard	(b).	During illness (f). (i).	Destruction of suctorial insects
Scabies, ...	....	....	Partial	....	....	(k).	
Scarlet Fever, ...	Modified	Absolute	Complete	Placard	30 days (e).	During illness. (d). (h).	
Smallpox, ...	Absolute	Absolute	Complete	Placard	30 days (e).	During illness. (f).	General vaccination.
Tetanus, ...	....	Special	Partial	....	....	....	
Trachoma, ...	....	Special	Partial	....	....	(k).	
Trichiniasis, ...	....	....	Partial	....	....	....	
Tuberculosis, ...	....	....	Partial	....	....	....	Destroy sputum by fire or germicides.
Typhoid Fever, ...	....	Special	Partial	Placard	....	....	Disinfection of stools and urine.

Typhus Fever, ...	Absolute	Absolute	Complete	Placard	(b).	(f). (g).	Destroy vermin, especially lice and bedbugs.
Uncinariasis, ...	....	Special	Partial	....	....	....	
Whooping Cough, ...	Modified	Special	Partial	Placard	(h).	During illness.	
Yellow Fever, ...	Absolute	Absolute	....	Placard	(h).	(f).	Exclude all mosquitoes.

*Placard as Typhoid Fever.

Date of onset reckoned from date given in report to the health authorities.

(a) School—Public, private, parochial, Sunday, or other school.

(b) Quarantine period is determined in accordance with the rules and regulations of the health authorities.

(c) Or *fourteen (14) days* when antitoxin has been used to cure the patient and to immunize all inmates of the premises and two negative cultures have been obtained from the diseased area of each patient on the premises for two successive days. Exclusion from school for cases and house contacts is until disinfection. *but* a person not having the disease may be allowed, after taking a disinfecting bath and putting on disinfected clothing and after antitoxin has been administered for immunizing purposes, to remove from premises on which diphtheria exists to other premises occupied only by adults and may be admitted to school *five days* after such removal.

(d) Cases excluded for *ten (10)* days after final disinfection of the premises; house contacts may return directly after such final disinfection.

(e) With such additional time as may be necessary, in the opinion of the attending physician, for the complete recovery of the last case on the premises.

(f) Cases and house contacts excluded until the final disinfection of the premises.

(g) A person not having the disease may be allowed, after taking a disinfecting bath and putting on disinfected clothing, to remove from premises on which the disease exists to other premises and may then be admitted to school.

(h) A person not having the disease may be allowed, under the conditions of "g," to remove to premises occupied only by adults, or by adults and immune children, and *fourteen (14) days* after removal may be admitted to school. If the person thus removing be also immune to the disease in question by virtue of a former attack, admission to school may be permitted the *day after* such removal.

(i) A person not having the disease may be allowed, under the conditions of "g," to remove to other premises and may be admitted to school *ten days* after such removal.

(k) "Those actually suffering from the following diseases shall be excluded from school during illness and shall be readmitted on the certificate of a physician attesting to their recovery and non-infectiousness. Tonsillitis, Scabies (Itch), Pediculosis capitis and corporis (Head and body lice), Trachoma, Impetigo Contagiosa, Favus, Acute Contagious Conjunctivitis (Pink Eye), Tinea Circinata." *Regulation of Advisory Board, Adopted Jan. 23, 1906.*

NOTE—It is expected that the requirements of local Boards of Health will conform to those of the State Department of Health, but these exactions shall in no sense be construed as abrogating any additional precautionary measures enforced by local Boards of Health.

Probably in some of the diseases for which absolute quarantine is required, the restrictive measures are more rigid than is necessary to limit the spread of the disease, and yet each of these diseases is of such rare occurrence in this Commonwealth that the inconvenience of the few may well be insisted upon for the absolute protection of the many.

The State Department of Health in establishing a new interpretation of quarantine under the title "Modified Quarantine" took a radical step in making provision for the wage earner to continue at his work with certain diseases isolated in his home but in so doing had distinctly in mind the fact that by establishing this modified quarantine it was introducing a procedure which would not only secure the cooperation of the individual householder upon whom certain restrictions were to be imposed, but would at the same time secure the cooperation of the community and prevent the concealment of those diseases when existing in mild or modified form. The tendency of quarantine officers to-day is to regard the individual who is suffering with the disease as the most dangerous agent in tranmission rather than the individual who happens to come in contact with the sick, or one who visits or who nurses the sick.

With diseases, such as German measles, chicken pox, and mumps, greater freedom is allowed Health Officers in issuing wage earner's permits than with the diseases of more grave import and believed by the public to be more readily transmitted, such as diphtheria, scarlet fever, and meningitis. It is not always remembered that the first modification of the Act for the control of communicable disease, *i. e.,* the Act of May 14, 1909, went a long way in reducing the period of quarantine and school exclusion for certain of the communicable diseases: for instance, the Act of the 18th day of June, 1895 made specific provision for school exclusion of those afflicted with diphtheria and all children of the household for a period of thirty days *subsequent* to recovery (or death) and disinfection of the premises. The first modification of the Act since the organization of the State Department of Health made provision for reducing this period to twenty-one days from the onset of illness and still further when certain negative cultures were obtained, a saving in school attendance on an average of more than thirty days for the afflicted and of fully thirty days on the part of house contacts. The same was true of smallpox and scarlet fever and by regulation of the Advisory Board, a minimum quarantine period of twenty-one days was established for measles, German measles, chicken pox, and mumps.

In the light of recent scientific investigation, it appeared that these periods for the last four diseases might with safety be reduced; hence, during the recent session of the Legislature an Act of Assembly was adopted cutting down this period of quarantine and school exclusion for the four diseases just mentioned to sixteen days from onset and making provision for sufferers from scarlet fever to return to school ten days after disinfection of the premises. Possibly the sixteen-day period is longer than need be required for the individuals sick with the disease; and yet susceptible members of the household not previously having had the disease have to be considered in establishing such minimum restrictions and for this reason the Act provides the sixteen-day period in order to catch all susceptible individuals who might themselves be exposed in the dwelling and not succumb to the infection until about the sixteenth day after the onset of illness in the first case.

It will be recalled by all physicians that during the time when restrictive measures have been in vogue for premises wherein scarlet fever, measles, German measles, whooping cough, or chicken pox was being treated it was a frequent occurrence that children or adults were kept in quarantine who had previously suffered an attack of the particular disease for which the quarantine was established. During the last session of the Legislature specific provision was made, in the Act of May 28, 1915, for the transfer of pupils, presumably immune to a certain disease by reason of a former attack, to other premises in which dwell only adults or adults and children who have suffered with the particular disease for which the transfer is asked and to permit these individuals to return to school the next day after such transfer, provided that evidence satisfactory to the health authorities be submitted to show probable immunity.

This radical departure in our quarantine procedure will immediately offer great relief from restrictive measures heretofore unnecessarily imposed, and at the same time will tend to bring about closer cooperation with the school authorities because of the cutting down of school absences owing to quarantine for these communicable diseases. Further, the requirement of evidence satisfactory to the health authorities will encourage the keeping of better statistical records in regard to communicable diseases in children.

In the larger cities of the Commonwealth, in some smaller municipalities, and in the rural districts we have had medical inspection of schools for some years, and a careful compilation and filing of quarantine records by health authorities. Much information is already available as to the occurrence of communicable diseases in a large proportion of the children of school age. It seems but fair and just at this time that records thus accumulated should be utilized in furnishing information satisfactory to health authorities and making it comparatively safe for them to base their certificate upon official records in arranging for a transfer of pupils to other premises under conditions set forth in the law and to allow such individuals, either pupils or teachers, to continue their school work.

It is the policy of the Department in the establishment of quarantine first, to do the things which protect persons not residing in the dwellings, and, second, to impose such restrictive measures as may be required to protect other members of the family. Our restrictive measures are established in the first instance for the protection of the community; in the second, in cooperation with the family doctor, for the protection of other members of the family. In the quarantine of the home in its relation to other homes in the community the health authorities are almost wholly responsible after the physician reports the illness, and the restrictives measures imposed for the several types of quarantine for the various communicable diseases are plainly set forth in the law and in the regulations of the Department.

In rural communities and in the small towns where each dwelling may have its own lawn the area of quarantine may extend beyond the entrance door and in convalescence the area of quarantine may very profitably be extended beyond the doorstep, both to give the advantage of fresh air and mild exercise for the convalescent patient and for the purpose of securing more satisfactory cooperation on the part of the nurse. In such homes, too, it is sometimes desirable to set apart the rooms on the first floor as an isolated section most convenient for nursing, thus lessening the hardship of quarantine for both nurse and patient and getting better isolation care. A side door often affords access to the available water closet, and to fresh water, and is convenient for receiving food in the sick room or passing out infected dishes while the remainder of the dwelling may be utilized with safety for the other members of the household.

In the domestic or domiciliary quarantine the Health Department is advisory for the most part; the family physician and head of the household jointly with the Department assume the responsibility so far as protecting other members of the household is concerned. It often happens that no satisfactory isolation within the home can be secured and it is necessary to establish absolute quarantine where modified quarantine might have been sufficient with careful isolation and intelligent cooperation.

Probably no one restrictive measure adopted by the Department of Health has been responsible for so much intelligent cooperation in quarantine as has been the careful instruction of the public in the details of modified quarantine and the conditions under which it may be established with the wage earner continuing at his work. Our present quarantine restrictions may perhaps be higher with some families and for some diseases than public safety would absolutely require, and yet you, as members of the Medical Profession, I am sure, fully appreciate how necessary it is to have uniform rules and regulations for all families and as nearly as possible for all diseases transmitted in a similar way in order to remove the confusion that is apt to develop in the minds of the public by having a variety of rules for the various diseases with differing quarantine periods and differing restrictive measures for each. When in doubt it is always the part of wisdom to establish measures sufficiently rigid to insure protection and in this particular, I am sure the Medical Profession will always agree with the Department of Health.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912.	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913.	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov., 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus indicating its Influence on Immunity and Susceptibilty to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28 rev.,	Apr., 1914,	The Preparation of the Biological Products distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bathtubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March, 1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April, 1915,	Diphtheria and Diphtheria Antitoxin.
69.	May, 1915,	Flies as a Factor in Infant Mortality.
70.	June, 1915,	Pennsylvania Health Legislation of 1915.
71.	July, 1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug., 1915,	The Sanitary Engineer in Public Health Work.
73.	Sept., 1915,	Quarantine of the Home as Practised by the Department of Health in Pennsylvania.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 74. HARRISBURG, PA. OCTOBER, 1915.

AN ADDRESS BEFORE THE PENNSYLVANIA WATER WORKS ASSOCIATION IN ITS ANNUAL MEETING AT ATLANTIC CITY, OCTOBER 21, 1915.

The etiology of disease is one of the most important and complex problems, outside of war with each other, that confronts man at the present time. A glance at the Vital Statistics of any city, state, or country will demonstrate that only a small portion of the population live for the allotted span of three score years and ten. The majority die from disease or violence and their early demise produces an economic loss which far outweighs that due to any other cause.

To-day the word "Conservation" is uppermost in the minds of our thinking people. This conservation is for man, therefore as he is the recipient, his physical and mental health must be maintained to the highest degree. It bears upon every moment of his life and all his endeavors. Our studies of the cause of disease have only recently acquired a scientific character. The discovery and development of the germ theory gives an added impetus to these investigations, and has resulted in the determination of the definite cause of certain of the most common maladies. As you are so familiar with the Vital Statistics, it is not worth while for me to consume your most valuable time in enumerating the loss by years of our most useful beings through preventable diseases.

Only recently have our Governments awakened to the importance of health problems and made appropriations for scientific research work and the application of the preventive measures discovered. Pennsylvania's General Assembly, in the year 1905, recognized the necessity of taking account of stock by creating a Bureau of Vital Statistics under a Department of Health which was established with power to wage war against these communicable diseases.

Typhoid fever and some other dangerous diseases were known to be commonly water-borne. To meet these death-dealing enemies the "Purity of Waters Act" was passed. It has to do with sewage problems and water supplies. It is chiefly concerning the administration of this law that I wish to speak to-day.

A survey of the 45,000 square miles of territory in the Commonwealth revealed the fact that most of the raw sewage both from the well and the sick, was directly discharged into the streams from which the large majority of our eight millions of people obtain their drinking water. This condition was simply appalling, not only because of the pollution, but also because with this condition we met the fact that the thousands of miles of sewers were connected to the plumbing systems of hundreds of thousands of dwellings and the streets had been paved at an enormous outlay of money. In many instances the municipalities had borrowed up to their legal limit. A large number of towns had their sewer systems constructed below the high water lines. Other small villages were in clay bottoms with impermeable geological formations that did not permit of dry walled cesspools. Another of the serious difficulties in our old Commonwealth was that the vast majority of those living on the watersheds were not educated up to the necessity of caring for the water supplies and therefore demanded of their local government officials improved paving, ornamental lights, statuary or memorial fountains, gold topped public buildings,—in short, anything other than the sanitary disposal of sewage. That only seemed to them to benefit their neighbors down the streams. The philosophy of Americans should be to work for each other's interests.

There had been no supervision by the State previous to the year 1905, therefore local governments had acted alone for their own individual interests. As a matter of fact, they really never stopped long enough to work up a comprehensive system looking ahead to the growth of the municipality, but had merely grown up as Topsy did. In some towns we found four foot sewers emptying into three foot sewers. In other places we discovered literally blind sewers.

We had great police powers under our new law of 1905, but we had the people's best interest at stake in a broad sense and the conditions present had to be borne with for a while, as all had to live during the time changes were being worked out. Drinking water and water for manufacturing purposes such as it was, had to be tolerated while we were educating the people to the great evils of impure water and their representatives to appropriate large sums of money for improvements along the lines of new sewerage systems and changed water supplies. The people and their representatives were apt scholars and took notice of the fearful death rate from typhoid fever and gave a willing ear to our teaching of its being a water-borne disease. First through the newspapers and leaflets we sounded our slogan "Death in the bed pan," so that the microorganisms of typhoid fever might be killed before they reached the streams.

It was not a difficult task to get the people to understand that it was murder to throw prussic acid into a stream for a neighbor to drink, and then by a few lessons in bacteriology they easily recognized the death-dealing power of the germs of typhoid fever.

By our handling of water-borne epidemics of typhoid fever we soon worked ourselves into good favor. We took charge of the afflicted municipalities and fortunately by the time the incubation period of typhoid fever had passed, the statistics showed a sudden fall in the reports of new cases. Some of our diagrams showed almost a perpendicular drop.

The bad physical features and the unfortunate financial conditions of many of our towns made expedients necessary. Thus it came about that we temporized by installing disinfection plants. This practice, however, we hope in time to reduce to a minimum, as those things destructive to pathogenic life are often more or less destructive to the tissues of the animal body. The problem, therefore, requires careful handling. When circumstances will permit, we should try and balance the quantity of disinfectants with the organic matter in the water being treated.

As I have said, we had and still have, thanks to wise legislators and Governors, a splendid "Purity of Waters Act" and with great police powers. I have, however, intimated to you some few of the difficulties we had to contend with in a state as old as Pennsylvania.

The Purity of Waters Act aims at the heart of the still existing troubles, for it forbids the discharge of sewage into streams and requires all persons to obtain a permit from the State prior to the construction or extension of a waterworks for the supply of water to the public.

We all recognize that certain streams can never be restored to their virgin state, as there are incidental causes of pollution which are unavoidable, but we know that the proper purification of our streams and the filtration of the waters used for domestic purposes will reduce the existing degree of danger to the health, both of man and beast.

The urban population of our country is constantly increasing and the quantity of water to be obtained from unpolluted sources would become more and more limited if it were not for the activities of the State and Municipal authorities. As the demand for water becomes greater, our streams will be used more and more as sources of water supplies. In using surface streams we always run the risk of pollution. To make them safe for domestic use it is necessary that the water be purified before it is furnished to the people. This purification is usually effected by filtration, but a filter plant, like any other complicated machinery, even with skilled attendance, does not always operate at its highest efficiency and so it is not in itself a sufficient safeguard. The additional remedy is to remove the pollution or at least to do so as far as practicable. Thus it is that sewage treatment and water purification must go hand in hand, that the risk be reduced to a minimum to guard the precious lives of those depending upon our work.

When the present State Department of Health began its activities Pennsylvania was a typhoid-ridden State. Our first trustworthy vital statistics are for 1906 and in that year the number of deaths from typhoid fever amounted to 3,917, or more than from any other acute disease excepting pneumonia. This meant that one in every three hundred of our population each year suffered with typhoid fever and that one person in every 1,825 of our population died a needless death, as typhoid fever is a preventable disease.

The modern scientific medical profession has done much to eliminate typhoid fever through careful disinfection of the discharges from the patient, but unfortunately in this disease the onset is slow and the physician is not called in consultation until several days after the patient has developed the disease. During the incubation period and sometimes for months and even years after apparent recovery, the wastes from the patient may carry the organisms of typhoid fever. When this comes in contact with food or drink that is consumed by those not immune it will in most cases reproduce the disease. It is therefore apparent that the danger of infection is great and that the problem of wiping out the disease is not as simple as it first seems. Our efforts for the elimination of the disease may be divided into three parts. The first has to do with the individual patient and consists in the proper isolation and treatment. The second, having to do with the public, consists in the adoption of such measures as may be necessary to prevent the distribution of infected matter to other human beings through pollution of food or drink. The third is prevention by vaccination. The duration of the immunity so produced is however still uncertain.

The scope of the State Department of Health's work in preventing the pollution of the streams and the improvement of public water supplies for the protection of the public health may be illustrated by a few general figures.

Under the authority of the "Purity of Waters Act," the Department has studied sewerage conditions in over 400 municipalities of the State and has made more than 800,000 separate sanitary inspections of properties scattered throughout the rural districts. Permits and decrees relative to sewer systems to the number of 1,002 have been issued upon unanimous agreement of the Governor, Attorney General and Commissioner of Health after careful field investigation by the Engineering Division of the Department and a study and review by the Chief Engineer and the Commissioner of Health of the present and future needs of the municipality and the best method to meet them. Each of the permits and decrees contains such stipulations as are deemed necessary to subserve the general interest of the public health as affected by the discharge of sewage from the separate municipalities. In the inspection work in the rural districts we have secured abatements of over 150,000 insanitary conditions. This work has covered over 25,000 square miles of territory and included the watershed of practically every stream used as a source of water supply. At the present time ninety-two sewage treatment works are in operation in Pennsylvania, purifying the sewage from cities, boroughs, and certain large institutions. Several other plans are under construction and plans are completed or in course of preparation for many more.

Public water works have been studied in nearly 700 municipalities and 863 permits and decrees have been issued regulating the supply of water in the separate municipalities. Here also the actions of the Department are not arbitrary or hasty. Such decisions are given only after detailed field investigation by the Engineering Division and a careful review and study by the Commissioner of Health. The conditions attached to the permits are only such as are deemed necessary to render the supply not prejudicial to public health.

In some cases the conditions of the permits for waterworks and sewerage construction have been thought onerous by laymen, but the result accomplished when the improvements are installed as the Department requires, amply justifies the expenditures. One trouble with municipalities and some corporations is that they do not recognize the science of sanitary engineering and call in experts. Experience has proven that the large epidemics of typhoid fever, once so prevalent throughout the State, were mostly caused by infected drinking water. In many cases the water supplies had been in use for many years and I have no doubt had been the cause of thousands of cases of typhoid fever without exciting general comment, but in other instances the supplies were popularly held to be above suspicion and the sources of infection were not so apparent. We have records of epidemics where the supply was obtained from a watershed almost free from habitations and the pollution was due to the drainage from a public road, a single case of typhoid fever occurring in an isolated house on the watershed, the discharge of sewage from the toilets of trains passing across or near by the stream, the faulty operation of a filter plant, or by the temporary use of an emergency water supply. Supplies taken from a stream flowing through a populated territory and served to the public without adequate purification are generally condemned and are to-day rarely considered for public use. It is the supplies taken from sheds almost free from sources of pollution but containing dangerous features such as I have mentioned above which must be remedied. In addition to these features, hunting, picnicking, or berry picking on the watershed, or the use of the stream for boating, bathing, or fishing are all real menaces to the purity of a water supply. A single ambulatory patient or carrier engaged in these apparently harmless recreations upon a watershed could easily pollute the entire supply of a community and become the cause of a wide-spread epidemic of typhoid fever or other water-borne disease.

At the present time a hundred and twenty water filtration plants are in operation in Pennsylvania, supplying purified water to over four million persons, or approximately half the total population of the State. Several others are under course of construction and it does not require a gift of prophecy to realize that in a very few years there will hardly be a community in the entire Commonwealth which will be exposed to the danger of drinking unfiltered water from a surface stream unless it be a supply taken from a watershed which is effectively protected from pollution or one where the water has been purified by natural agencies through long-time storage in large and properly designed reservoirs.

It is not only the policy of the State to pass upon all sewage disposal plants and waterworks, but to follow them up from time to time, and at irregular intervals, to check off their operation. In operating you should never overwork the filter by watering it too much. This same thing applies to the stock.

The State Department of Health's work in connection with typhoid fever as well as other forms of disease is usually of a preventive nature, that is, we endeavor to remove possible causes and to prevent the outbreak of an epidemic by the interposition of barriers against the pollution of water and other food supplies and by the quarantine and control of the individual cases. We keep careful watch of the vital statistics of each community from day to day and whenever typhoid fever or other disease is unusually prevalent in any locality officers of the Department are sent out to investigate and emergency measures are installed at once. Oftentimes the Department's representatives are on the ground and the cause isolated or a general warning given before the residents of the community even realize the presence of the disease. The Department's policy is much like that of a military army during active warfare.

It is only by examining our records for the entire State that we realize the progress made in the past ten years. This period is but a brief time to accomplish a task which involves a change in habits established by the custom and usage of generations, but as "eternal vigilance" is the price not merely of liberty but also of success, we are beginning to reap the reward. From a total of 24,471 cases of typhoid fever in 1906 with 3,917 deaths, the rate has been consistently reduced until in 1914 the total number of cases had dropped to 7,653 and the deaths to 1,071. This represents a decrease of approximately 70 per cent. When this present year has closed we confidently expect that the complete records will indicate an even greater reduction. At any rate, on the first of October the number of deaths from the disease so far this year was below that for any previous year in the history of the Department.

The total value of this reduction in the deaths has been most gratifying. If the death rate which obtained in 1906 had prevailed to the present time, over 20,000 more persons would have lost their lives from typhoid fever. While one-half of the world is endeavoring to exterminate the very best of its manhood we may well congratulate ourselves that we are of the other fraction which is striving equally to conserve its population and to save its citizens for service to this and the coming generation.

The financial aspect of disease is an everyday consideration of our great life insurance companies and industrial corporations. A wide-spread realization of the value of good health would cause an awakening of public sentiment throughout the world. Take typhoid fever as an example and calculating at the lowest economic value of human life and loss of wages incidental to sickness: in 1906 alone the loss to Pennsylvania was about $24,000,000. This does not take into consideration the impairment of vitality or lessening of earning capacity which often times prevails for years after apparent recovery. Even with the tremendous decrease in typhoid fever brought about in the past ten years, the annual loss is still appalling, but on the other hand, the economic saving is far greater and amounts to approximately $18,000,000 annually.

The public is more insistent each year in its demands for a pure and adequate water supply. This is simply the result of a general awakening of civic responsibility in the various communities and a growing realization of the value of this most necessary general commodity. We must have water to maintain life, but if the water is not free from disease producing organisms, it does not fulfil its complete function in the scheme of the universe and instead of an aid it becomes a detriment to a community.

This convention has in its power, through the activities of its various members, an opportunity for serving the State such as is granted to but few organizations. If each one present will set himself squarely in favor of a pure water supply for his community and will use his influence to procure its installation, the people of the State will be his debtor. If we will work together earnestly, the present decreasing death rate of typhoid fever and other preventable forms of disease will continue until Pennsylvania can easily hold her head high among the states of the Union and maintain her place in the front ranks in health as well as industrial records.

You are the guardians of our most important single commodity and if you wish, can nobly serve your generation by a realization of the value of your trusteeship. The dividends produced will not only be of a material nature but far better, will also include the sense of valiant service to your State and your Nation.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.		Subject.
1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progess, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1 Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria; How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March.	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bathtubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	August,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health in Pennsylvania.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.

* * *

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 75. HARRISBURG, PA. NOVEMBER, 1915.

AN ADDRESS DELIVERED AT PITTSBURGH OCTOBER 29, 1915, AT THE LAYING OF THE CORNER-STONE OF THE CHILDREN'S BUILDING OF THE HOSPITAL OF THE TUBERCULOSIS LEAGUE.

A little over ten years ago the people of this Keystone State of the United States of North America were pitching headlong into the riches that prehistoric processes of nature had stored up to be ours by good fortune through the peace-loving, honorable, and honest William Penn.

We were living off our principal. Coal, oil, gas, iron, and other necessities for civilization were so abundant that we simply feasted upon them. We had not a moment to pause and reflect on the necessity of measuring up the life of all that the centuries had stored away for our benefit.

Conservation had not taken hold of the public mind. Less than eleven years ago we were intoxicated with these riches. We did not appreciate how many of our brothers—I say brothers, because in a representative form of government we must be brothers—were being swallowed up in death by our worst enemy—disease.

We did not at that time know how many marriages of relations with common weaknesses were taking place. We did not know how many babies were being born to grow up to become loyal American citizens at heart. We did not know the influx of foreigners that were coming in our midst only to partake of some of our principal and carry it back to their own nests abroad and leave us struggling with great economic questions that must be solved that we may live on our interest. We must produce for ourselves and produce in such a way that our product will be interesting to those in other nations.

A change has come in the direction of conservation in this little Empire of ours. Digress with me just a moment to consider what a wonderful little empire it is with its 45,000 square miles of territory, a territory larger than the kingdoms of Bavaria and Wurttemberg and the Duchy of Baden rolled into one. A territory made up of the magnificent remains of the oldest geological formation on our globe. A territory that has been subjected to active volcanoes, floods, and glacial interferences producing an irregular topographical condition that diversifies our scenery and makes this region one of the most beautiful spots on the earth, with its meadows and mountains such as to stimulate our engineers to the highest mental activity in providing for intercommunication by rapid and safe transportation. A territory in which are found people from all nations, driving our educators to their wit's end that the great problem of educating them may be solved, and solved quickly—I say quickly because if not done quickly the free right of franchise will become a mere comedy and shake the very foundation of our form of government, so dear to us and so ideal, as Franklin considered it, for good people. Let men and women ponder well the necessity of a high quality to govern our votes.

To return:—It was in 1905 that this step forward was taken in our little Empire when the Governor and the Assembly, entrusted with the making of laws and the execution of them, made provision for a better understanding of our resources that they might be duly husbanded. In this year it was that a State Law was passed creating a Department of Health and in it a Bureau of Vital Statistics that should bring to light the conditions which the Department would need to know and meet.

The Health Department was organized at once, and organized along the line of a War Department in active service. The officers of the Bureau of Statistics formed the picket line. By them at any and at all times, the Commissioner of Health was informed of the activity of the common enemy—the grim destroyer—throughout our territory.

The button setting into activity the organization of our Bureau of Statistics was pressed on the first day of January, 1906, and so good was its work that the Federal authorities could soon say that it formed the keystone of the arch of the statistics of the United States. The first tabulation of the activities of the Bureau came to us in 1907. Then came an appropriation to be used by the Department of Health in an active battle against tuberculosis. A result of this is that to-day we have a traveling exhibit accompanied with teachers, that our people may be informed of the presence of tuberculosis and the ways to prevent the spread of this disease. Our Dispensary nurses visiting the habitations of those suffering from the disease are another outcome of this wise legislation.

With this work of the State government the battle against tuberculosis is kept active through the entire State and protects us as much as possible, without interfering too much with the activities of civilized life, from the spreading of the germs of the disease by our own people and from those passing into or through the Commonwealth.

There is no one more interested in us than we are ourselves and it is the pride of the State Department of Health to supervise the work with the aid of all the activities of the different municipalities within our boundaries. It has worked faithfully to encourage efficiency and economic work in the home centres throughout the State.

In our great battle we shall require both efficiency and economy if we expect to be victorious, and we must work together like a well organized army. We must remember what the psychology of a crowd means. An army must not be too much subdivided. We must always work in a sufficiently large number to keep up a shoulder to shoulder touch; not only in the army of physicians and nurses and teachers, but in the army of patients who are battling in the field side by side with us.

I do not often talk in public because for years I have been engaged in active warfare, so you will pardon my long preamble to the special subject of to-day, yet I have always appreciated the privilege of associating with the representative people of this important centre of Pennsylvania's activities.

It gives me genuine pleasure to participate in these ceremonies which mark the beginning of a valuable addition to the resources of a city already distinguished by its institutions for the study of disease and the cure of the sick. The building for which we place a corner stone to-day is intended for a single disease, but a disease of exceptional importance, and for a limited class of patients, but patients of fundamental value to the community and the State.

Tuberculosis is a disease of great seriousness in its extent and outcome. In the year 1914, the last year for which we have complete statistics, there were 10,140 deaths in Pennsylvania from the various forms of this disease, and of these 755 are credited to Pittsburgh. In these deaths are included 1,218 children under fifteen years of age, the number of young Pittsburghers being ninety-one.

It is not so long ago that these deaths—and even more—seemed inevitable. For this audience it is sufficient merely to remind you that tuberculosis has now become a disease for which a cure or at least an abiding control is a comparatively simple matter since we have learned that suitable treatment is remarkably efficacious, the only difficulty being in the practical application of our knowledge. The period of hopelessness, not to say therapeutic nihilism, is forever gone. and in its place has come a time of boundless hope with a therapy of striking simplicity.

It is for the child that a wise benevolence has created this building, this sanatorium, this place as the name indicates where the young are to be cured. The child is after all the most important problem, medically as well as sociologically, with which the State has to deal. In the child, its welfare and prosperity, is bound up the future not only of our beloved Commonwealth, but of the entire country. It is this thought which makes me particularly glad to join with you in celebrating the first step in the material realization of one of man's most noble and Christian projects, a work which carries conviction to men that the natural impulse of self-preservation in man is not only for the individual, but also for the country, for the race.

Children in their path of development intuitively take care of themselves, which makes them appear selfish.

"No sense have they of ills to come,
"Nor care beyond to-day."

"A simple child,
"That lightly draws its breath,
"And feels its life in every limb,
"What should it know of death?"

Their struggle for individual existence, as it seems to them, is all-monopolizing. The greater the struggle, the greater the development.

Men, however, are not all born with equal strength or into like environments. Environment often determines the evolution of the simpler forms of organic life, but in man it only affects the degree of his capabilities. The measure of success to which a man may attain, therefore, depends not only upon natal strength of body and mind but also upon his surroundings and the fertility of the field which it is his life work to cultivate. His happiness depends upon mental and physical vigor up to a certain degree. One with average health and ability may prosper to an extent which with contentment will enable him to have and enjoy the comforts of life and be happy, but when Nature gives good health and great strength of body and mind and with these is combined a favorable environment, he may attain not only a position complete for his own individual existence but one which will give him the power and means to help others less fortunate.

Some who rise to this enviable position may in the heat of the struggle have lost or dulled the natural feeling of fellowship and may live and die without realizing the full measure of their success or how much was in store for them. Others born with warm blood and kindly sentiment eagerly reach for the deeper happiness that these have lost.

How is this to be secured? The answer does not come through any process of reasoning as to the natural relation of man to man. It is not to be solved by the cold logic of a trained mind even though by this method a result be obtained apparently identical with the right solution. It is a question of impulse and the answer comes intuitively from the warm, sentimental heart, as by its prompting the full hand reaches out to help and save. Thus only is the fulness of man's happiness realized.

After the impulse has prompted the outstretched hand, then comes logic in its rightful place. Sharing with others that which ability and work have accumulated should not be lightly or indiscriminately done. Many avenues open themselves to the giver. Which of the many is most commendable? What have other men done and what results have they obtained? What is most essential to the happiness of mankind? The searcher finds that the industries upon which we depend for comforts and necessities, the wealth that enables us to enjoy them, and the arts of civilization which diversify our lives are but the fruitage of the tree of life the very taproot of which is health, and that he who stretches out his hand to alleviate human suffering, to prevent untimely death, and to promote the health of the people is doing not only work of prime importance but work which must bring to his sympathetic heart the deepest satisfaction.

There are of necessity other factors which must cooperate with private and public health measures for the advancement of our civilization; other commendable benefactions such as Institutions of Learning, Libraries, and Homes for those, who, with advancing years, are no longer able to win in the struggle for existence which are worthy of the good offices of the philanthropist. Yet through none of these, without health, is it possible for man to reach his highest goal.

To some of you who have had the kindness to follow me thus far in these remarks, I may seem to have wandered somewhat far afield. Possibly it may look as though I had quite forgotten the poor children, in whose behalf we have gathered together to-day, and had come to speak rather of the prosperous and generous grown-ups to whose success and still abiding good impulses sick children owe this building and those that are to follow. But my wandering is not so aimless as at first glance it may appear. In the last analysis prosperity and success are in most cases the outcome of a wise use of opportunity. The poor child of to-day, the waif, even the guttersnipe, may perchance be the prosperous merchant, the captain of industry, the millionaire of to-morrow, but all his zeal and the most abundant opportunity will be in vain if he have **not health. That** a certain group of the poor children of Pittsburgh may have health and be able to make the most of themselves according to ability and opportunity is to be the peculiar function of the group of buildings whose beginning interests us this afternoon.

In this blessed day of scientific medicine, when as never before it is almost a pleasure to be ill, hospitals of various types are essential for the treatment of disease. Some of us can recall the time when the treatment of disease was in the main empirical and specific measures for treatment and cure were few. After years, however, abstract science accumulated facts and discovered principles to which students of research devoted their lives, along lines of cautious experiment, and gradually man began to make practical application of them for the prevention and cure of disease. Pasteur made the great forward move which directed attention to the importance of microorganisms in relation to disease. To Lister we owe the practical use of antiseptics. Vivisection in the lower animals taught us that we could venture with the knife into the abdominal and brain cavities without producing death.

These discoveries were timely in enabling man, having become a more specialized being, to meet the demands of his existence, to repair damages that come from accidents more or less unavoidable, but by no means always so, and to overcome harmful or unpleasant conditions such as result from disease and are often, far too often, the fruit of his rebellion against Nature's laws.

Modern applied science in medicine and surgery demands the most favorable surroundings, the most improved apparatus, trained operators, and attendants for the highest degree of efficiency. For these the modern hospital is a necessity. There being a single purpose before the architect and his medical colleagues, everything is made subservient to that purpose. The construction and furnishings are of a character best adapted to perfect cleanliness and disinfection. The system of ventilation permits the introduction of a volume of air sufficient to keep the atmosphere of the rooms and wards normal in composition, while the temperature can be regulated with exactness. In the wards and operating rooms are installed intricate and costly apparatus for administering anaesthetics, electricity, and oxygen, X-ray machines, sterilizers for the perfect sterilization of instruments and appliances, and other equally necessary facilities which could not be had in the home or even in the office of the practitioner. Highly educated physicians and surgeons and trained nurses under strict discipline as well as trained attendants are always at hand so that there may be no delay in emergencies. Minutes often compose the thread upon which hangs a human life. The machinery of the hospital, animate and inanimate, is always ready.

The modern management of cases of tuberculosis is in general less dependent on apparatus and appliances, but even in hospitals devoted to their care surgical and medical emergencies occur and provision for them must be made. With certain limitations the hospital for the tuberculous is similar to any other hospital. There must be a fuller provision for life in the open air and for patients that are not bed-fast than is needed in a general hospital, but in all other essentials the structural requirements are much the same, and in a building planned for the care of tuberculous children the modifications are mainly a matter of quantity rather than one of principle.

We come now to the question of what may be expected of an establishment such as this is to be. Here much might be said, but I must be brief.

The essential thing in the treatment of tuberculosis as we now view the problem, is an increase in the power of resistance of the patient. We do not attack the disease directly. We cannot as yet reach the germs themselves and destroy them, although we may in time become able to do this. There is nothing to cut out or to cut away, in fact surgical measures are relatively useless except in certain quite special conditions. Drugs also play a comparatively insignificant part and we may say in general that the less medicine a tuberculous patient gets the better. A certain form of vaccine, or something resembling a vaccine—a preparation made from dead cultures or involuted forms of the tubercle bacillus—has value because it helps the body to develop its natural resistance and the use of this agent is likely to grow in favor, but this is in no ordinary sense a drug nor is its administration similar to giving medicine for the disease.

The fundamental aids in increasing resistance are rest, fresh air and abundant nourishing food, and—more fresh air. Along with these goes such regulation of life as the circumstances of the case demand:—proper clothing, avoidance of unsuitable exercise or work, plenty of sleep, and so on. These are largely dietetic and hygienic measures, to be supplemented by other measures when necessary, even, but seldom, by drugs.

It will naturally be asked why a special hospital should be required for a treatment so relatively simple. The answer is that human beings are very much creatures of habit and prone to go on living in ruts—ruts that are particularly favorable to the encouragement of tuberculosis. We may preach health and the way to take care of the tuberculous, but to get the proper measures adopted in a family having a tuberculous member is a slow process and the delay does the patient much harm. When we come to deal with children, they are usually too young to exercise any initiative in regulating conditions in the household.

A chance to live in a hospital under skilled direction and supervision is a large opportunity for the tuberculous child. In the case of a Pittsburgh child under treatment in a Pittsburgh institution such as this other benefits may be expected. The child soon takes to the institution and joins in the gay life of the crowd, providing the family is made to realize the necessity of denying themselves the pleasure of a frequent sight of their own so dear to them. War against disease is to be likened to war between nations—to win sacrifice must be made by both the sick and the well. Occasional visits may be made that the home folks may thus become more ready to do something to render the lives of the rest of the household more hygienic and to provide for the patient when he returns to the heart of his family that he may continue the good habits taught him in the hospital. Cooperation between the hospital and the State Dispensary in the city may be helpful in matters relating to the sociological work of the nurses, or it may be well for the hospital to develop its own staff of visiting nurses, for the work of such nurses is fundamental in our campaign against tuberculosis.

The other question with regard to what this hospital may be expected to accomplish deals with the direct benefit to the patient himself. Will he get well? Let us be quite frank in this matter. Not every tuberculous person coming under treatment will get well. There are some that start with so low a power of resistance that no amount of the most painstaking treatment, no treatment of any kind whatsoever, will bring about a cure. We have at present no sure means of determining this important condition at the outset. We can only try each case by itself. Very extended experience, however, shows beyond question that tuberculous children placed under proper care respond as a rule promptly to the treatment here outlined and that many of them will get entirely well again or make such progress under institutional supervision as to make complete recovery probable if the conditions of life leading to recovery are maintained after the children return home.

In all this two factors play a prominent part. In the tuberculosis of childhood, or of any age period, it is most important to get hold of the case early, the earlier the better. Tuberculosis is a disease that progresses, sometimes rapidly, sometimes not so fast, and it is most amenable in the early stages. Secondly, but hardly less essential, is a thorough trial of the treatment. The statistics of the Dispensaries and Sanatoria of the State Department of Health show conclusively—be not depressed, I do not propose to feed you with figures—but they show clearly that the time spent under treatment is an element of the utmost significance. Some cases improve so rapidly that they may be safely dismissed after a relatively short time; others respond slowly to treatment and only gradually learn the lesson which a good sanatorium teaches. Taking it, however, by and large, our experience, and this I believe is true of all institutional treatment of tuberculosis, makes it evident that in general the patient shows greater and more lasting improvement the longer he remains. When patients go home after a brief sojourn they tend to relapse even though good progress has been made before they went. The greatest test of our new establishments is that which proves whether or not we can hold our patients sufficiently long to secure cures. To ensure getting patients in the early stages of the disease and enforce a sufficiently long stay much educating of the public must be done, and here the churches as well as the visiting nurses may give efficient aid. Homesickness and restlessness are often stumbling blocks. If the sick are visited too often by those they love the sweet home life will be brought vividly before them and renew acute attacks of homesickness. In case of adults and children I think that it is unquestionably a benefit to make almost a complete break with home associations and home ties, not to speak of home temptations.

Statistics are the graveyard of interest in a public address, but bear with me a moment while I present a few figures to indicate what may be expected of the treatment of tuberculosis in children.

In the year 1914 there went out from our great sanatorium at Mont Alto 2,148 patients. Of these, 166, or nearly eight per cent., were noted as "apparently cured;" 535, almost exactly one-fourth, were so-called "arrested cases;" and 677 were "improved;" or altogether 1,378 persons (64%) who had clearly benefited by a stay in the sanatorium. Of the remainder, 541, a shade over a quarter, were noted as "progressive," which means in the language of the hospital likely to go on from bad to worse, and 229, almost a ninth, had died during the year, over ninety-six per cent. of the dead having been admitted in the far-advanced stage of the disease.

Among the 2,148 patients thus discharged were 231 (nearly eleven per cent.) young persons under fifteen years of age. For them the record reads that 89, or thirty-eight per cent. (nearly five times the general percentage), were "apparently cured;" 100, or forty-three per cent. (over against twenty-five per cent.), were "arrested;" 38 were merely "improved." This leaves three "progressives" and one "dead," or less than two per cent. to be compared with the thirty-six per cent. in the general result for these conditions.

More profitable perhaps is a comparison in each group of those under fifteen with those of the same group over that age. Let me premise for the benefit of any to whom the terminology is unfamiliar that it is the custom to classify cases of tuberculosis when they come under treatment as "incipient," "moderately advanced," or "far advanced" to indicate the stage of the disease. For our purpose just now these terms need not be further defined.

For the group of incipient cases the Mont Alto tabulation shows that of those under fifteen forty-six per cent. went out "apparently cured," while for those over that age the percentage was twenty-two. The "arrested" cases under fifteen made up thirty-eight per cent. against thirty-five per cent. of those over fifteen. In the group of moderately advanced cases the outcome is even more striking. Here we find that twenty-three per cent. of the persons under fifteen went home "apparently cured," while the percentage of those over fifteen was only five. The "arrested" cases made up fifty-six per cent. of those under fifteen and thirty-five per cent. of those over that age. In the group of the far advanced cases there were only four children so that any comparison with the 939 older persons of the group would be absurd. These figures might be extended by data from the Cresson Sanatorium which show similar results but the number of cases is smaller. I will spare you further details. Those already given may suffice to make it clear that treatment of tuberculosis in children is a fruitful field of endeavor, the cultivation of which promises an abundant harvest.

Over this stone will rise a living monument, throbbing with hope and promise, ever making record for the good Samaritans whose warm heart impulses have prompted them to help their fellow-men. We bid this Institution God-speed and wish it every prosperity. May it attain even greater results in its peculiar line of work. May an ever broadening stream of blessings flow from this building—these buildings—and others yet to come—true Temples of Healing.

PENNSYLVANIA HEALTH BULLETINS.

No.	Date.	Subject.
1.	July, 1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug., 1909,	Note on the similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb., 1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March, 1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April, 1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	The Effect of Injections of Tannin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March, 1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June, 1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept., 1911,	Tuberculosis in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March, 1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residences.
36½.	July, 1912,	Report of the Austin Disaster.
37.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
38.	Sept., 1912,	Modern Medicine and the Physician.
39.	Oct., 1912,	Battling for Health at Mont Alto.
40.	Nov., 1912,	Tuberculin.
41.	Dec., 1912,	Conservaion of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan., 1913,	Municipal Sanitation.
43.	Feb., 1913,	Tuberculosis and our Schools.
44.	March, 1913,	The Relation of the Undertaker to the Public Health.
45.	April, 1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May, 1913,	Troy Typhoid Fever Epidemic.
47.	June, 1913,	The Registration of Vital Statistics a Social Service.
48.	July, 1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug., 1913,	Pennsylvania Health Legislation of 1913.
50.	Sept., 1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct., 1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov. 1913,	Bathing.
53.	Dec., 1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan., 1914,	The Waters of Pennsylvania. An Address Before the State Board of Agriculture.
55.	Feb., 1914,	Reproduction and Race Betterment.
56.	March, 1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28. rev.	Apr. 1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May, 1914,	Insanitary Bath Tubs and Lavatories.
58.	June, 1914,	On Housing.
59.	July, 1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug., 1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept., 1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct., 1914,	On the Upfollow of Sanatorium Patients.
63.	Nov., 1914,	Effective Rural Sanitation. End Results.
64.	Dec., 1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan., 1915,	Present Organization of the State Department of Health.
66.	Feb., 1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March, 1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April, 1915,	Diphtheria and Diphtheria Antitoxin.
69.	May, 1915,	Flies as a Factor in Infant Mortality.
70.	June, 1915,	Pennsylvania Health Legislation of 1915.
71.	July, 1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug., 1915,	The Sanitary Engineer in Public Health Work.
73.	Sept., 1915,	Quarantine of the Home as Practised by the Department of Health in Pennsylvania.
74.	Oct., 1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov., 1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.

⁂

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 76. HARRISBURG, PA. DECEMBER, 1915.

ON THE PREVALENCE OF TYPHOID FEVER IN PHILADELPHIA IN THE AUTUMN OF 1915

The morbidity returns coming to the State Department of Health revealed a striking increase in typhoid fever in August and the succeeding months. As the cases reported during the early part of the year had been exceptionally few, this change stimulated curiosity and I directed that an engineer be sent to Philadelphia to make an investigation. Accordingly, Mr. Howard E. Moses, Assistant Sanitary Engineer, was detailed for this service, and the Inspectors Claypoole, Hellings, and Evans were assigned to aid him. The study of the situation in the field occupied ten days, beginning on the fourth of November, and has been reviewed by Mr. Moses in a divisional report from which much of the following material is taken. Deep interest is attached to the findings, not only because they reveal highly insalubrious conditions, such as may readily recur in other large cities, but also because for only the third time since the Laboratories of the Department were established, ten years ago, have our workers been able to detect the presence of the Bacillus typhosus in food or drink submitted for examination.

Prior to the installation of the filtration plants, through which practically the whole of Philadelphia is now supplied with filtered water, there was a very high morbidity rate of typhoid fever, which showed a marked diminution as the filtered water was served over ever increasing areas. The following table gives, in a summarized form, the total number of typhoid fever cases for the entire city for a fifteen year period, 1901 to 1915, inclusive. It will be noted that prior to 1909, when the Torresdale filtered water supply was put into service the case rate was quite high. This year marked the time when the last section of the city received filtered water and since that date almost the entire city has been furnished with filtered water.

TYPHOID FEVER IN PHILADELPHIA 1901-1915—INCLUSIVE.
FOR 1915 ONLY JANUARY TO OCTOBER—INCLUSIVE

1901,	3,750	1909,	2,441
1902,	5,017	1910,	1,745
1903,	8,691	1911,	1,377
1904,	6,613	1912,	1,514
1905,	6,181	1913,	1,698
1906,	9,746	1914,	793
1907,	6,719	1915,	618
1908,	3,562		

In the fall of 1913, the State Department of Health made an exhaustive investigation of typhoid fever in the city of Philadelphia and vicinity, the result of which investigation has been set forth in detail in an annual report which is now in the press. At that time a careful study of the public water supply was carried on and in the report referred to there is a large mass of detail respecting this phase of the investigation and this need not be repeated here. But since any unusual outbreak of typhoid fever in a municipality directs attention to the public water supply, it is pertinent at this juncture briefly to describe the various water supplies given to the city.

Taken as a whole, the city of Philadelphia is furnished with water by plants owned by the municipality. There are two sources of supply, namely, the Schuylkill River and the Delaware River. All of that section of the city known as West Philadelphia, which lies on the west side of the Schuylkill River and comprises six wards (24, 27, 34, 40, 44, 46), is served with water from the Schuylkill River, filtered at the Belmont filter plant. It may be remarked that Overbrook, lying in the Thirty-fourth Ward, gets its water from the Springfield Consolidated Water Company, a private corporation furnishing water to a large territory lying for the most part to the west and north of the city.

There are three other districts with a water supply from the Schuylkill River, known as the Queen Lane, Lower Roxborough, and Upper

Roxborough districts. All of this territory lies to the east and north of the Schuylkill River and through these three filter plants about 240,000 persons are furnished with water. In the Belmont district over 250,000 persons reside. In the Schuylkill River districts on the east side the territory served with this supply is quite irregular as to distribution by wards. In no one case is an entire ward served from any one of the three filtration plants but parts of wards are served from each district. There is a small section of the Forty-second ward that is also served by the Springfield Consolidated Water Company. In 1910, the city of Philadelphia had a population of 1,500,000 so that it appears that nearly one-third of the entire population resided in the districts served with water from the Schuylkill River.

The rest of the city receiving the public supply is furnished with Delaware River water through the one filtration works on this stream. This is known as the Torresdale plant and in it about sixty-five per cent. of the total public water supply furnished to the city is filtered. The Torresdale filtration plant is located on the west bank of the Delaware River near the northern limits of the city about ten miles from City Hall. The water filtered here flows through a large conduit to the Lardners Point pumping station and from here is pumped into what is known as the Torresdale district, which is a large section of the city lying between the Schuylkill and Delaware Rivers covering an area of possibly twenty-eight thousand acres. The district is sub-divided into several smaller areas for the purpose of distribution. These are known as the Wentz Farm high and low service districts, the Oak Lane high service district, and the Main Torresdale district, being enumerated in accordance with their locations from the filtration plant downstream. The Main District is by far the most thickly populated and for the purpose of discussion may be further subdivided into the Central and the South Philadelphia sections. All of the sub-districts just referred to are furnished with the same water, some directly through the pumping mains, and others by way of storage reservoirs.

Additions to the various filter plants have not been made in the same ratio as the population of the city has increased and, consequently, these plants are overworked. This is particularly true of the Torresdale plant. At each plant the filtered water is treated with chlorine gas as a precautionary measure before it goes to the consumer.

The South Philadelphia district, with which this report specifically deals, lies between the two rivers below South Street. It includes nine wards (1, 2, 3, 4, 26, 30, 36, 39, 48), and has a population of about half a million. This district is not furnished with water from the

Torresdale plant through exclusive mains but receives its supply through large conduits, locally known as "express mains," that lead from Lardners Point pumping station through the northern and central sections of the Torresdale district, at numerous points having branch connections feeding this territory and finally entering the South Philadelphia district. Two of these express mains, so-called, are on Broad Street and there is a third, nearer the Delaware River, at present terminating in the vicinity of Market and Second Streets. During the past season an extension to this latter main has been under construction so that now it has been carried into the South Philadelphia district considerably below Market Street, but at the time of this investigation no water was being served into this district through this pipe line. It is the intention of the Department of Public Works ultimately to carry an individual express main from Lardners Point down along the river into the southern district to supply this section only, but, as conditions are at present, the southern district is receiving the same kind of water that is served elsewhere throughout the Torresdale distribution area.

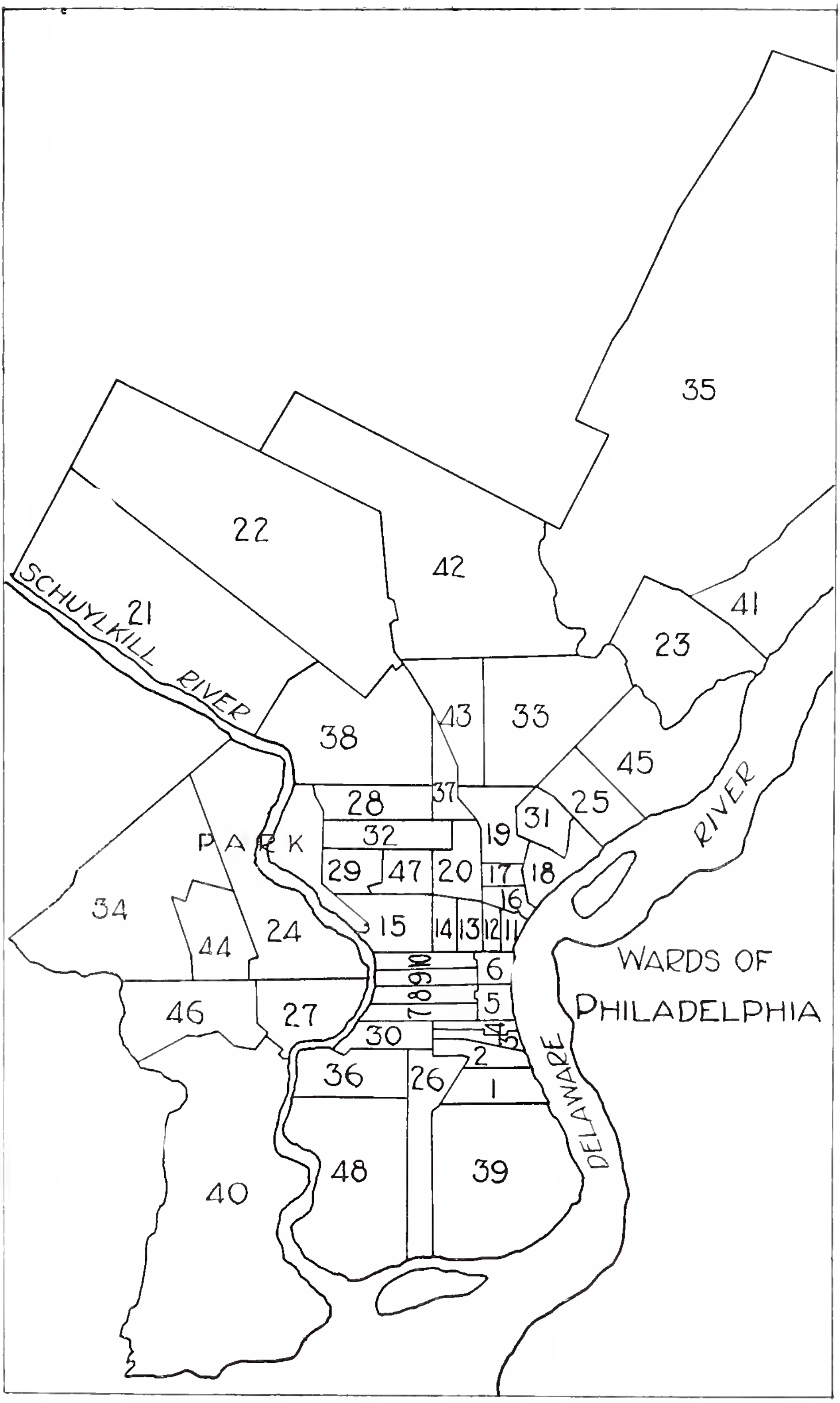
The investigation relative to typhoid fever carried on in 1913 by the Municipal and State Health Departments left a strong suspicion that the outbreak of that year was due to a pollution of the public water supply, particularly in the Torresdale district, so much so in fact that the main Torresdale district was termed in the reports of this study as "the infected water district." The conclusion reached by the city Department of Public Health and Charities was:

"That the probable cause of at least seventy-two per cent. of the typhoid fever cases in Philadelphia (in 1913) was due to the pollution of the city service mains; and, in the absence of any other known cause of contamination, it is fair to assume that this pollution was caused by the dual piping system in use in certain manufacturing plants."

The investigation had shown that there were a large number of manufacturing plants having in use a dual piping system, one system carrying city water filtered and the other, raw, polluted river water. As a result of the campaign carried on by the Bureau of Health a large number of such dual connections were severed and it appears that now, according to the information of the Bureau, practically all of the dual connections have been discontinued.

The Outbreak of Fever in 1915.

During 1914, there were reported in the city 793 cases of typhoid fever, a marked reduction as compared with the 1,698 cases reported for the year 1913. The records for the year 1915 show that for the


WARDS OF PHILADELPHIA
35
22
42
41
21
23
SCHUYLKILL RIVER
43
33
38
45
25
37
28
31
19
32
PARK
RIVER
29
47
20
17
18
16
34
15
14
13
12
11
44
24
10
9
8
7
6
5
4
3
46
27
30
2
36
26
1
DELAWARE
48
39
40

first seven months of the year the morbidity for typhoid was considerably lower than for the preceding year, but for the next three months the number of cases increased rapidly, the total being much in excess of the number of cases for the same period of the previous year. This caused the city and State officials considerable anxiety, and a special investigation was undertaken to ascertain the cause of the outbreak. It developed that while there were scattered cases of typhoid fever throughout the entire city, yet by far the greatest number occurred in the South Philadelphia district and principally in a section of this district largely inhabited by foreigners, a fact which directed the attention of the investigators to a careful consideration of this locality with a view to ascertaining whether there might be some special cause for the cases of this particular district. The investigation was finally centred on the outbreak as it occurred in the First, Second, Third, and Fourth Wards and the northeastern section of the Twenty-sixth ward, as in this region the focus of infection seemed to lie.

Before proceeding with the detailed study relative to this limited territory, it may be pertinent to note the facts as to the general prevalence of typhoid fever throughout the entire city and for the purpose of comparison data are presented in a couple of tables which give, in a summarized form, the occurrence of typhoid fever from January to October, inclusive, for the years 1913, 1914, and 1915.

Here is given the total number of cases in the city for each of the three years, by months, and on page 6 appears a table having a comparative record of typhoid fever cases by months for each ward in the city.

TYPHOID FEVER IN PHILADELPHIA.
1913, 1914, AND 1915 BY MONTHS.

	1913	1914	1915
January,	47	41	26
February,	60	52	36
March,	59	36	27
April,	54	51	28
May,	165	59	26
June,	199	72	35
July,	180	82	36
August,	297	117	91
September,	218	113	136
October,	176	79	177
Total for 10 months,	1,355	702	618

COMPARATIVE RECORD OF TYPHOID FEVER IN PHILADELPHIA, ACCORDING TO DATE OF REPORT TO CITY FOR FOR THE YEARS 1913, 1914 AND 1915, BY MONTHS (JANUARY TO OCTOBER, INCLUSIVE), AND BY WARDS.

Ward.	Jan.			Feb.			March.			April.			May.			June.			July.			Aug.			Sept.			Oct.		
	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.	1913.	1914.	1915.
1,	4	4	....	3	2	....	2	2	....	2	1	....	10	4	1	12	4	....	14	6	1	22	9	6	3	4	4	10	3	11
2,	2	3	4	1	3	1	1	2	....	4	2	3	4	8	....	21	3	5	10	7	....	17	3	6	9	7	27	5	4	30
3,	2	1	....	1	....	1	3	1	....	4	....	2	7	....	....	12	6	1	3	2	3	8	3	5	5	4	8	3	8	13
4,	....	....	1	1	2	....	2	1	1	1	....	....	1	3	1	11	6	4	1	6	2	5	5	1	5	2	4	2	8	10
5,	....	1	1	2	....	1	2	....	....	2	....	....	3	....	....	6	2	....	6	....	....	4	5	4	2	3	1	3	1	3
6,	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	5	....	....	1	1	1
7,	....	....	1	....	2	1	3	....	....	....	1	1	5	1	1	6	....	....	5	....	2	6	3	4	3	1	1	5	2	2
8,	....	....	....	....	....	1	1	....	....	....	....	....	4	....	....	....	2	....	....	....	....	1	....	1	....	1	1	1	....	....
9,	1	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	1	....	....	1	....	....	1	....	....	2	....	....	....	1
10,	1	....	....	1	....	3	1	....	....	....	....	....	1	....	1	2	....	....	2	....	....	1	1	1	2	1	1	1	....	1
11,	....	....	....	....	....	....	....	....	....	1	....	....	2	....	....	....	....	....	....	....	....	1	....	1	4	1	....	1	....	1
12,	....	....	....	1	....	....	1	....	....	....	....	....	....	2	....	1	....	....	2	....	....	4	1	2	9	3	1	3	....	....
13,	....	1	....	1	3	2	1	1	....	....	....	....	....	....	....	8	....	....	1	....	....	5	2	2	3	1	2	3	....	3
14,	....	....	....	3	....	....	1	....	1	3	....	1	4	1	....	3	....	....	1	....	....	3	....	2	3	1	....	1	....	....
15,	....	....	....	2	1	....	1	1	1	1	....	2	2	....	1	4	1	1	3	1	....	7	2	1	8	4	1	4	1	3
16,	....	1	....	....	....	....	1	....	....	1	....	....	3	2	....	3	1	....	3	1	1	6	....	2	4	....	....	4	1	....
17,	....	1	....	1	2	....	....	1	....	....	....	....	2	1	....	3	1	....	2	1	1	4	1	....	3	....	....	5	....	....
18,	....	....	1	4	....	1	1	....	1	3	1	....	6	....	....	4	1	....	4	2	....	9	2	1	5	....	2	2	....	2
19,	1	....	1	1	4	2	2	....	1	3	3	....	7	....	1	8	....	....	6	3	....	17	....	....	11	3	1	7	3	1
20,	1	4	1	2	....	1	3	2	2	4	2	2	8	....	....	5	2	1	6	5	....	8	8	2	11	2	....	4	5	2
21,	....	....	....	1	....	1	....	1	....	....	2	....	3	2	....	1	1	1	....	....	....	3	....	....	2	1	3	4	1	4
22,	3	2	....	1	5	....	1	....	2	2	2	....	7	2	....	5	3	1	....	1	4	6	5	4	10	8	4	6	3	5
23,	2	....	....	2	....	....	....	....	....	1	....	....	....	....	....	2	....	....	1	1	....	2	....	4	....	....	3	....	....	1
24,	....	....	1	1	....	2	1	....	1	2	4	....	2	3	2	1	3	2	1	2	1	2	1	....	4	4	1	6	1	4
25,	1	2	2	2	....	6	....	2	2	....	2	1	11	1	....	5	2	....	11	2	....	9	5	1	9	2	3	7	....	1
26,	2	....	5	4	8	....	1	5	4	3	5	....	19	6	3	13	4	2	14	1	1	25	4	4	10	6	5	22	5	17
27,	1	....	....	....	....	....	1	....	1	....	....	1	....	2	1	1	....	1	....	....	....	2	2	1	....	2	2	1	....	....
28,	1	1	....	....	1	....	3	....	....	3	3	....	4	3	....	2	2	....	....	1	1	7	2	1	3	3	2	....	3	4
29,	1	1	....	....	3	1	1	....	....	....	....	1	1	....	1	1	2	....	....	1	2	3	3	2	5	2	1	4	....	1
30,	....	....	....	....	....	....	2	1	....	2	1	....	....	1	2	1	1	....	5	1	2	5	3	2	1	1	8	1	....	2
31,	2	2	1	3	2	1	1	1	....	2	1	1	1	....	....	3	1	1	2	....	....	4	1	2	5	1	....	3	....	....
32,	2	2	....	1	....	....	1	2	1	2	2	1	3	2	....	4	1	....	3	3	....	4	4	....	2	2	3	5	1	....
33,	3	1	....	1	1	1	2	1	....	....	1	....	3	....	2	2	1	....	10	3	1	9	5	1	3	1	3	6	2	....
34,	1	2	1	....	1	2	....	....	1	2	1	1	1	3	....	2	2	1	4	4	2	7	3	1	6	2	4	4	1	5
35,	1	....	....	....	....	2	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	2	1	1	2	....	....	....	....	....
36,	1	....	1	3	3	1	3	....	....	....	1	....	10	1	1	11	2	2	16	1	3	21	3	4	10	6	7	6	4	3
37,	....	....	....	....	....	....	....	....	....	....	1	1	....	2	....	3	....	....	....	....	1	....	....	....	2	....	1	2	....	....
38,	2	1	....	3	1	1	....	1	2	1	2	1	5	2	1	3	3	2	1	4	....	3	2	2	1	5	2	2	3	2
39,	5	4	2	1	3	1	4	5	....	1	2	....	11	1	1	17	4	1	15	4	1	34	9	4	17	4	4	10	7	7

40, ...	....	....	1	2	....	....	2	1	1	....	3	1	2	3	....	3	....	3	10	4	1	6	5	3	8	6	11	7	3	12
41, ...	....	1	....	1	2	....	....	3	....	....	1	....	....	1	....	....	....	....	....	6	1	....	2	....	1	....	....	....	2	....
42, ...	1	....	...	....	....	....	3	....	2	....	2	2	3	1	1	3	....	1	....	....	...	....	3	5	1	3	1	4	1	2
43, ...	4	2	..	3	....	....	3	....	1	1	3	1	1	1	....	....	5	2	2	3	....	2	3	1	4	4	5	2	1	4
44, ...	....	....	1	2	....	....	1	....	1	1	....	1	....	....	2	....	1	....	4	....	1	3	....	2	1	1	....	1	1	12
45, ...	....	....	1	2	1	....	1	2	....	....	....	....	3	....	....	2	1	1	7	....	....	2	2	2	3	1	....	2	3	....
46, ...	....	2	....	2	1	2	1	....	....	2	1	3	3	....	2	2	2	....	1	....	1	5	1	3	5	3	6	4	....	5
47, ...	2	2	....	....	....	1	....	....	....	....	....	1	2	....	....	2	....	2	3	1	1	2	....	....	8	3	1	2	....	....
48,*	....	....	....	....	1	....	....	....	....	....	1	....	....	....	1	....	1	....	....	3	2	....	2	....	....	2	2	....	....	2
	47	41	26	60	52	36	59	36	27	54	51	28	165	59	26	199	72	35	180	82	36	297	117	91	218	113	136	176	79	177

---

*Made from a part of the 36th ward, November, 1913.

From the data presented in these tables it appears that in 1915 there was no material increase in the number of typhoid fever cases until August, in fact the morbidity was exceptionally low. Beginning then and continuing through September and October the cases became decidedly more numerous, so much so as to alarm the City and State Health Departments. The outbreak started in the latter part of July and the study relating thereto has been made of the cases occurring in July, August, September, and October, a total of four hundred and forty cases. They were scattered quite generally throughout the entire city but the significant feature of the outbreak is found in the fact that one hundred and fifty-eight of the cases, or thirty-six per cent., were localized in a comparatively small area in the southeastern section of the city. In most instances, the cases elsewhere in the city could be ascribed to various causes but of these hundred and fifty-eight cases only seventy-three, less than half, could be assigned to a definite cause, the remaining eighty-five, being of unknown origin.

Naturally, the public water supply would first receive attention as a possible source of infection. Since this section of the city receives the same supply as all other parts of the Torresdale district it would be supposed that, if the water coming from the Torresdale filter plant were infected, the outbreak would be more or less general throughout the area served with this supply. Such was not the case. The Bureau of Water makes analyses of samples of water collected from various stations through the entire district. At the Torresdale plant the daily routine comprises an analysis of three samples of raw water, two of the water applied to the pre-filters, and two of the water from the pre-filters; of one sample from each of the sixty-five slow sand filters and one combined sample of a mixture of water from all of the filters; and of three samples of the water after it has been disinfected with chlorine. At the Lardners Point pumping station nine samples are taken daily, one in the office and eight from the pumps. In the Torresdale district there are sixteen regular sampling stations scattered throughout the district. At nine of these stations samples are collected on alternate days three times a week. These nine are all situated north of Vine Street. Three of the remaining seven are in the centre of the city in the business district, and the other four are in South Philadelphia, on or below South Street. These seven samples are collected twice a week on days other than those on which the samples are collected at the uptown stations.

The results of analysis show that B. Coli were found in the raw and filtered water at the Torresdale plant at various points throughout the works prior to the time it receives the chlorine treatment.

This treatment, judging from the analytical results, interposes a barrier between the contaminated water and the consumer. A scrutiny of the results of analyses of samples collected down in the city for the year 1915 up to the first of November indicates that occasionally B. Coli were discovered, but mostly in portions of ten cubic centimeters. Beginning with July there were only a few occasions on which any such contamination appeared in the samples and, from the figures submitted by the Bureau of Water, the total bacterial count in these samples from September to November, inclusive, was very low.

When the outbreak of typhoid fever became known the Bureau established several special sampling stations in the Torresdale district but the results of analyses of samples collected at such places were generally negative so far as B. Coli were concerned.

The City Bureau of Health also undertook a series of analyses collecting its samples in the southeastern section of the city where the typhoid fever was localized. These were collected at or near the sampling stations of the Bureau and, generally speaking, they may be considered as corroborative of the other results obtained by the Bureau. B. Coli were found, however, on several occasions, mostly in portions of ten cubic centimeters.

At the time the State Department of Health made its investigation samples were collected and analyzed in its own laboratories, all of them being taken in the southeastern section of the city, some from the sampling stations of the Bureau of Water and some from new stations, and still others from fire hydrants throughout the district. An effort was made to secure water from dead ends of pipe lines. This procedure, however, was not started until the fifth of November, when the typhoid fever outbreak was on the wane, consequently, the samples cannot be considered as indicative of the water that was in the mains in July, at which time, or a little later on, the contamination must have occurred if the water was at fault. All told, forty-two tap samples and twenty-four fire hydrants samples were collected between the fifth and eighth of November. With but one exception the tap samples were negative as to B. Coli and all of the fire hydrant samples failed to show any B. Coli in one cubic centimeter. The water from the fire hydrants showed in some instances considerable turbidity indicating sediment in the pipes and corroborating findings along this line in the investigation made in 1913.

Moreover, the city has during the past year been engaged in the construction of a new sedimentation basin at the Torresdale filter plant along the bank above the intake. This work started in April, 1915, and was in the course of operation at the time the investigation was made. The dredging being done has caused the turbidity of the raw water to increase very materially, resulting in an extra load being placed on the filters and requiring more frequent washing of the pre-filters. Because of this operation, the State Department of Health advised the city water officials to increase the dose of germicide at the Torresdale plant over that which is ordinarily used. This was done and the increased dose was still being applied at the time of the investigation. It is expected that most of the work incident to the construction of this sedimentation basin will be completed by the end of 1915.

While the evidence as to contamination of the water supply does not wholly relieve it of suspicion as being the cause of the outbreak of typhoid fever, yet it is not sufficient to lead to the conclusion that the water was at fault; in fact, when all the other circumstances are taken into consideration the water must be excluded with the proviso that there is a dangerous condition existing here because of the insufficient capacity of the filter plant to meet the growing needs of the city, and that, furthermore, the barrier interposed between the contamination in the river and the consumer by the chemical germicide is too slight and is liable to be broken down at any time with the result that a widespread outbreak of a water-borne disease may ensue.

The investigation made by the State Health Department finally centred itself on the typhoid fever cases occurring in a foreign section of the city in the First, Second, Third, and Fourth wards, and a part of the Twenty-sixth ward. Roughly this territory lies between the Delaware River and Broad Street and extends from South Street south to Mifflin Street. The entire area is included in about one square mile. In 1910, in this area approximately 150,000 persons resided and the population in 1915, no doubt, is in excess of that number. This is distinctly a foreign section of the city and may roughly be divided into three regions marked by the predominating nationality in each. From the Delaware River west to Third Street is the Slavish region with the Poles the predominating nationality. Between Third and Seventh Streets the Jewish people predominate, and from Seventh Street to Broad Street it is said that the Italians outnumber any other nationality. Of course, in addition to these three nationalities there are many others represented in this section which takes on a distinctly foreign aspect due to the habits of the people residing here.

The conditions in this section are favorable for the spread of the disease. It is congested, the houses being built in compact rows with poorly lighted and crowded courts or alleys leading off from the main streets. There is serious overcrowding in the houses and, taken as a whole, the housing conditions are bad. In many instances surface drainage exists, the kitchen and laundry water being discharged into the gutters and stagnating in the streets. Generally speaking, the section is supplied with sewers and in comparison with some other parts of the city there are few of the old type of privy vaults. But in connection with the small houses and tenements there are many outside water-closets. Such environments naturally lead to insanitary methods of living. The streets are littered with refuse from the houses, some of the foreigners indulging in the practice of wrapping their garbage in paper and throwing it out into the streets, depending on the city street cleaners for its removal. The shopkeepers expose their wares in front of the store without properly protecting them, in many instances placing them on stands or in containers only a few inches above the sidewalks or streets. The traffic in the street and the street cleaning stirs up the dirt and dust with the result that such articles cannot but be contaminated.

Shellfish are sold in basements and cellars under decidedly insanitary conditions. Such places are dark and poorly ventilated, the shellfish are not kept iced and the forks are allowed to lie on the tables with a strong probability that they are very indifferently washed.

In the moving picture houses there is a lack of proper ventilation. The audiences are much crowded and spit freely on the floor.

It is a habit of many of these foreign families, particularly among the Italians, for the entire family to migrate during the vegetable and berry season to New Jersey, where they are employed, living as best they can during this season in old shacks. In many instances cases of disease, particularly typhoid fever. have been traced to infections occurring outside the city, the case developing after the patient returns to the city from a season spent on these berry and vegetable farms. From the conditions existing in the city home it is readily apparent why communicable diseases spread through a community such as this. Furthermore, the city health authorities are of the opinion that some of the foreign doctors practising in these sections fail to report cases of communicable disease or return a different diagnosis. Again, the patients are poor and do not consult a physician until absolutely compelled so to do. They are said to have a morbid fear of doctors and hospitals, all of which aids in hiding the disease.

Generally, it may be said that the dwellings in the section are unscreened and that flies and other insects have free access to the interior of such buildings and can thus become a very likely medium for the spread of contamination and possibly disease.

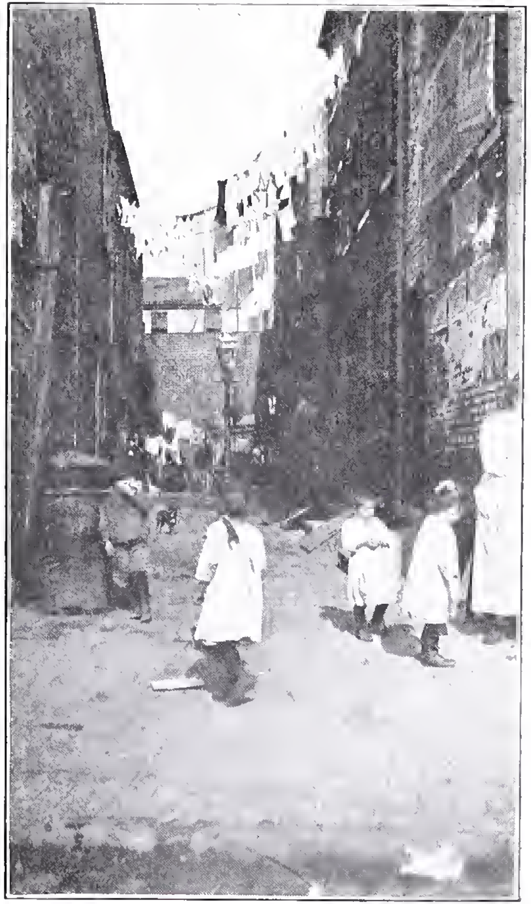
In the district thus outlined there are three curb markets, so-called. These were established by the city with the idea of reducing the high cost of living in the section.

The market nearest the river is on Fourth Street and extends from South Street for two blocks to Fitzwater Street and on Fourth Street from Christian Street to Carpenter Street, a distance of one block. This market is patronized chiefly by the Jews and Poles. The next market west is on Seventh Street and extends south from Reed Street for two blocks to Tasker Street and is patronized largely by Jews and Italians. The other market, and possibly the largest of the three, is known as the Christian Street or Ninth Street market and is distinctly an Italian market. It extends on Christian Street for one block between Eighth and Ninth Streets and south on Ninth Street for three blocks to Ellsworth Street.

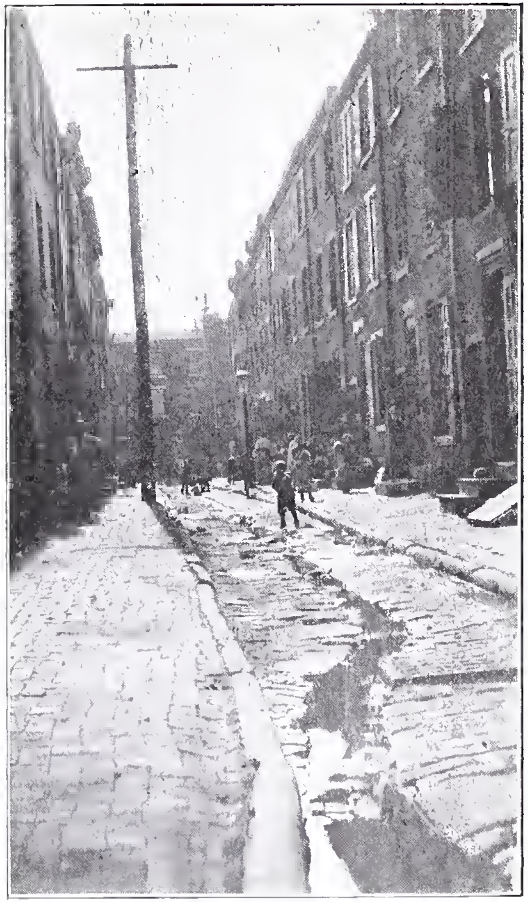
In general characteristics these markets are similar. The shopkeepers along the market place their wares on stands and in other containers out on the pavements in front of the stores. Produce is also exposed for sale in hand push-carts stationed along the curb and still other vendors place their goods in baskets on the pavements and in the streets. In some instances vegetables were found lying directly on the pavements without any protection whatsoever. In addition to the food products certain sections of the markets are devoted to the sale of drygoods and wearing apparel and such articles are in many instances placed directly on the pavements. The wagons of the street cleaners and the garbage carts are in and out through the market driving directly alongside the push-carts and other containers for food products which are not protected against contamination from such sources. On Ninth Street the trolley cars pass through the market and stir up the dust and dirt in the streets which increases the possibility of contamination. In addition also there is the customary street traffic.

The food products exposed for sale under such conditions comprise doughnuts, cakes, and various pastries and other bakery products, groceries, fish, all kinds of vegetables, poultry (both live and cleaned), eggs, cheese, candy, meat, and various other articles.

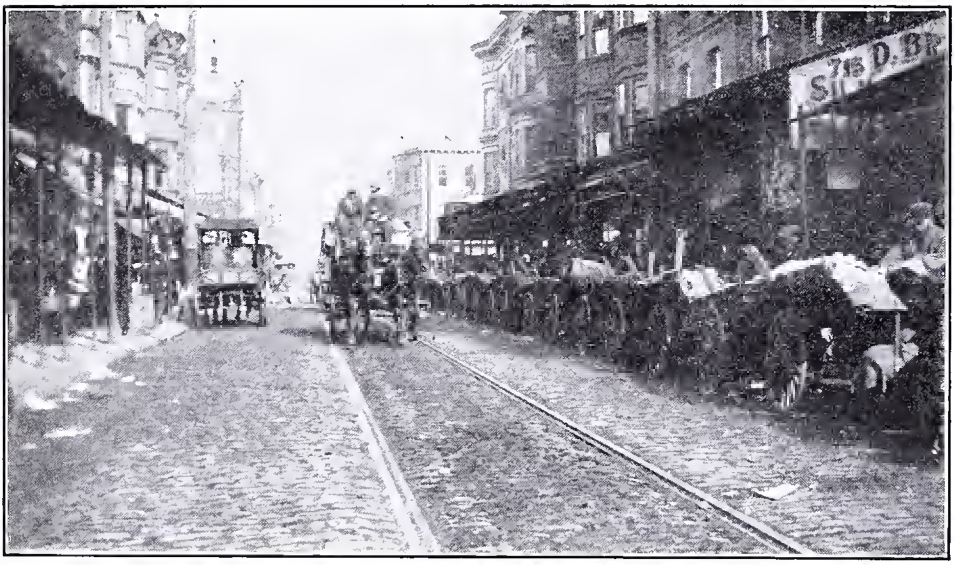
These markets are conducted nearly every day during the week, except Sunday. In addition, vegetables are trucked through the neighborhood in push-carts. Quite often one dealer owns many of these carts and rents them out by the day to vendors who obtain this supply of vegetables at a convenient place and, unquestionably, at the lowest rate, and then peddle them through the district from house to house. It is reported that most of the produce handled in these curb markets is secured along the Delaware River wharves and thus comes from many different sources. It is safe to assume



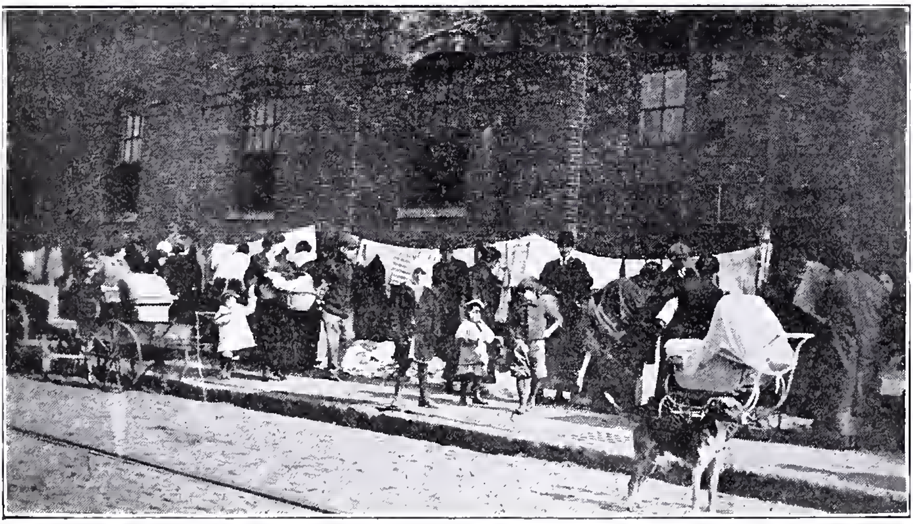
A CONGESTED COURT.
Near the Ninth Street Market.



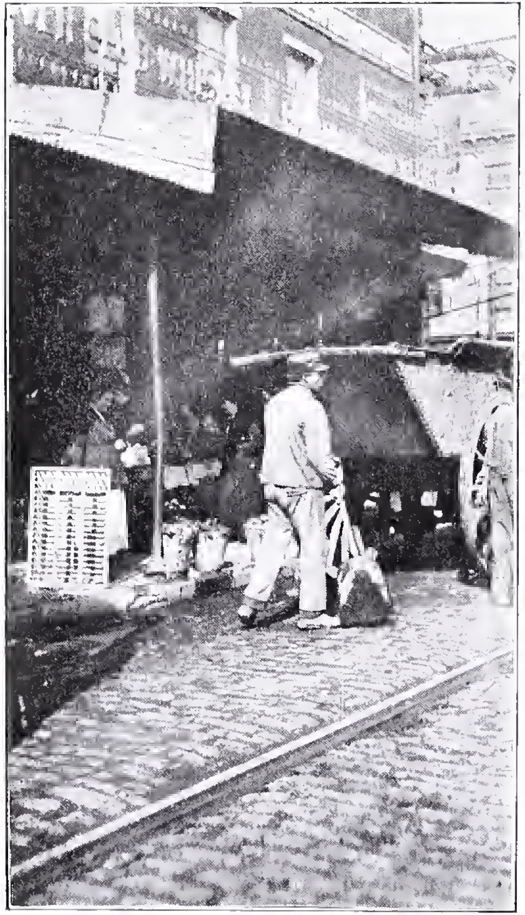
SURFACE DRAINAGE.
Near the Ninth Street Market.



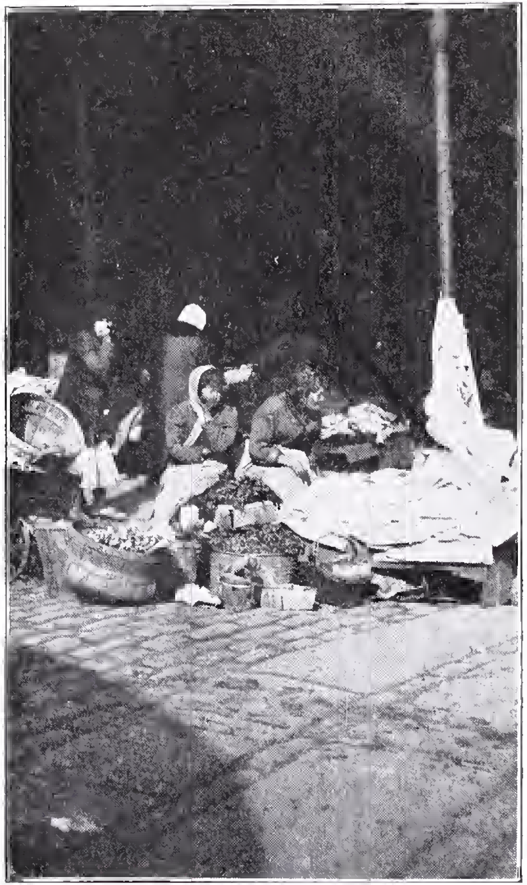
THE CURB MARKET ON FOURTH STREET.



DRY GOODS AND CLOTHING ON THE PAVEMENT.
Ninth Street Market.

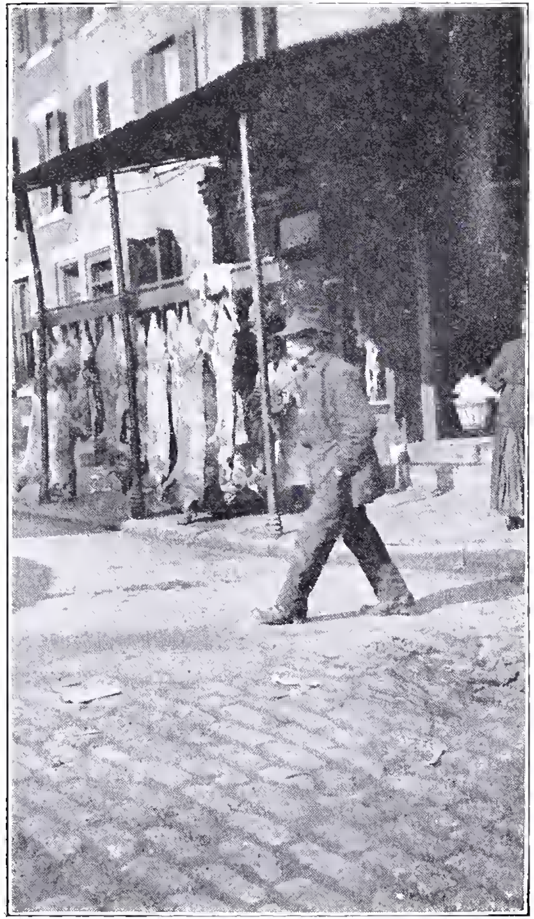


STREET CLEANING WAGON.
In the South Street Market.

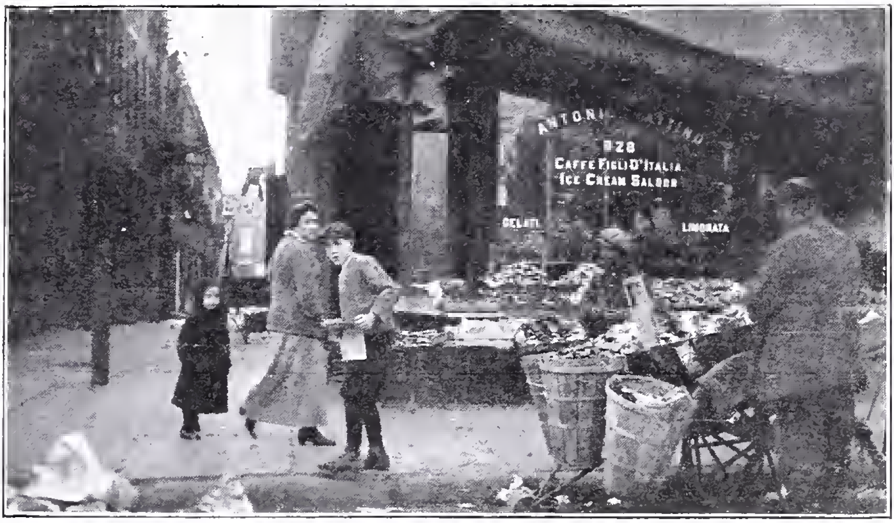


VEGETABLES AND DRY GOODS.
In the South Street Market.

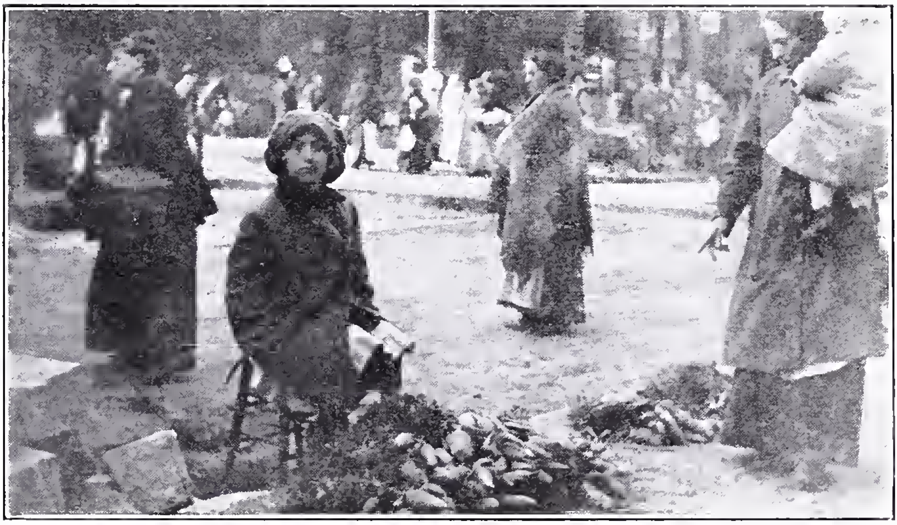
TYPICAL FISH FINGERING.
Ninth Street Market.



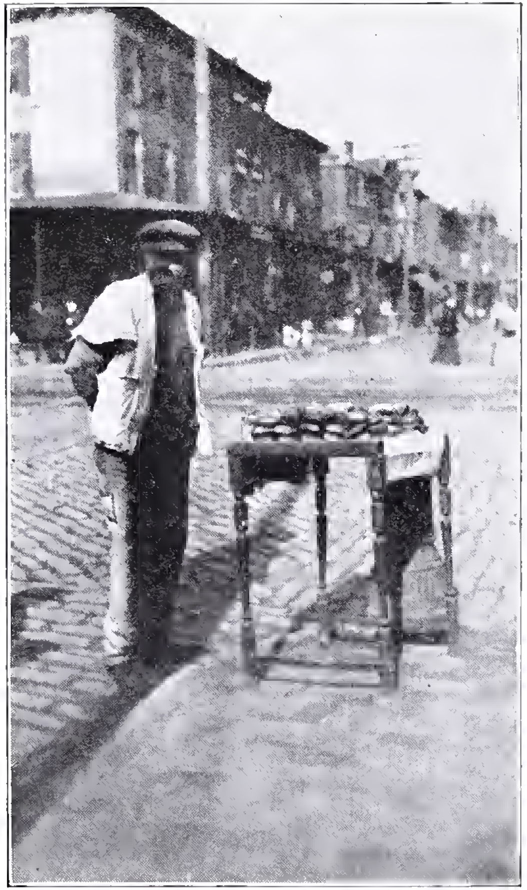
MEAT DISPLAY.
Ninth Street Market.



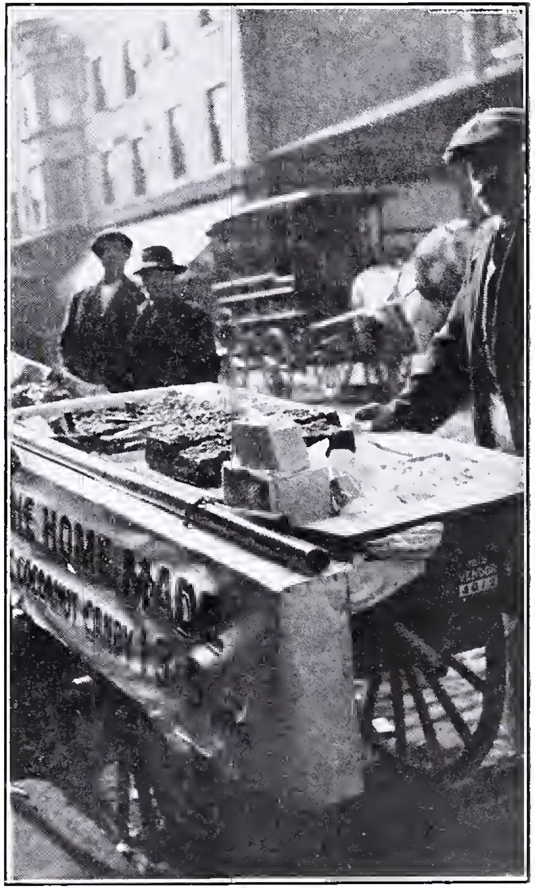
BAKERY PRODUCTS DISPLAY IN CHRISTIAN STREET.



CARROTS ON THE PAVEMENT.
South Street Market.



DOUGHNUT STAND.
Ninth Street Market.



CANDY CART.
Ninth Street Market.

that the majority of such produce is cheap and of an inferior type. In some instances decayed fruit is offered for sale.

Conditions such as those described above undoubtedly aid in the spread of disease and quite naturally one expects the morbidity rate to be higher in this section of the city than in others where better sanitary conditions prevail. A study of the records kept by the city shows that this is the case. Curves marking the distribution of typhoid fever in the city present a picture of a high morbidity rate in the wards now under discussion. In the absence of some general contributing cause, such as water, that might affect the entire city, the reason must be sought in local conditions.

While the sanitary conditions are similar throughout the entire district, yet the typhoid outbreak of the fall of 1915 seemed to be more or less centralized in the vicinity of the Ninth Street Market. Here occurred many cases of fever of which the origin could not definitely be determined. A spot map of the cases showed a cluster of them in the immediate vicinity of this market while the other cases in the wards under discussion are more or less scattered. This then would lead to the conclusion that there was some special cause obtaining in or near this market that did not exist at the other markets and a reasonable solution of the problem is obtained when the cases occurring from July to October, inclusive, in this district are carefully scrutinized.

During this period in the First, Second, Third, and Fourth wards and a part of the Twenty-sixth there were in all a hundred and fifty-eight cases of typhoid fever. For seventy-three of this number an origin was reasonably determinable, but for the remaining eighty-five cases no clear cause was evident. The location of the cases in the various wards is shown in the following table:

SUMMARY OF CASES IN THE DISTRICT.
JULY TO OCTOBER, 1915—(inclusive).

		Origin.	
Ward.	Cases.	Determined.	Unknown.
4,	16	5	11
3,	29	18	11
2,	63	36	27
1,	20	6	14
26,	30	8	22
Total,	158	73	85

With the seventy-three cases of determined origin this detailed study will not particularly concern itself as they arose from various sources, for the most part being infected outside of the city or coming definitely in contact with other cases. In one or two instances the infection of the patient is charged to bathing in sewage polluted water and for several cases there is a history of probable infection through a local milk supply.

A study of the various nationalities of the eighty-five undetermined cases is illuminating. The following table has been prepared from the reports of the cases as received by the Bureau of Health and recorded at the City Hall.

NATIONALITY OF CASES OF UNDETERMINED ORIGIN.

Nationality.	Ward.					Total.
	4	3	2	1	26	
American,	2	4	4	4	7	21
Italian,	7	7	22	5	13	54
Hebrew,	2	....	....	2	....	4
Polish,	....	....	1	2	....	3
Russian,	....	....	....	1	....	1
Unknown,	....	....	....	....	2	2
Total,	11	11	27	14	22	85

It appears from this tabulation that the Italians far outnumber any other nationality, there being fifty-four Italians out of the entire eighty-five cases. Next in frequency are the Americans, the number recorded for this nationality being twenty-one. A careful scrutiny of the city record reveals once more the difficulty of estimating the influence of nationality when the term "American" is used to describe a person born in the United States, a difficulty too little considered in the discussion of epidemics in regions largely populated by foreigners. Of the twenty-one "Americans" in the table sixteen have names indicative of foreign parentage and suggesting habits of life peculiar to foreigners. Of these sixteen, eleven are evidently of Italian parentage and seven of them are children from four to eleven years of age. As we have no statement of the time spent by the other Italians in this country it may be quite proper to count these eleven "Americans" among the "Italians" in order to estimate the bearing of national habits on the spread or development of disease. Of the two recorded as "unknown", one is a person of twenty-six with a distinctively Italian name, the other being nineteen with a foreign name. From the point of view of domestic habits we may say then that of the eighty-five cases under consideration at least sixty-six were Italians by birth or environment, of whom eight lived in the Fourth ward, nine in the Third ward, twenty-four in the Second ward, six in the First ward, and nineteen in the Twenty-sixth ward.

It is also interesting to consider these cases as to age and sex, as shown in the table herewith included:

AGE AND SEX OF CASES OF UNDETERMINED ORIGIN.

Age Periods.	4			3			2			1			26			Total.		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
0- 4,	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	1	1	2
5- 9,	1	1	2	1	0	1	0	0	0	1	2	3	3	3	6	6	6	12
10-14,	3	1	4	0	0	0	1	0	1	2	1	3	1	0	1	7	2	9
15-19,	1	0	1	1	1	2	7	2	9	1	1	2	5	1	6	15	5	20
20-24,	0	0	0	2	1	3	7	0	7	2	1	3	3	1	4	14	3	17
25-29,	2	0	2	2	0	2	5	0	5	2	1	3	3	0	3	14	1	16
30-34,	2	0	2	1	1	2	3	0	3	0	0	0	1	0	1	7	1	8
35-39,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40-44,	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45-49,	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
50+	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1
Total,	9	2	11	8	3	11	23	4	27	8	6	14	17	5	22	65	20	85

Thus it emerges that only two of the cases were infants, while twenty-one fall into the age period from five to fourteen years, and sixty may be considered as grown-ups ranging in age from fifteen to thirty-four years. The other two are above forty-five years of age. All but ten of the grown-ups are males.

Looked at from the standpoint of occupation it appears that thirty of the eighty-five patients may be classed as stay-at-homes, this including the school-children, those engaged in house work, and the others residing at home either because of their infancy or for some other reason. This then leaves fifty-five with some employment and a study of the facts indicates that they had nine different vocations. The largest number in any class were twenty-two laborers, the next largest number in any class being twelve factory hands. These facts are set forth in a summarized manner in the following table:

OCCUPATIONS OF CASES OF UNDETERMINED ORIGIN.

Occupation.	Ward.					Total
	4	3	2	1	26	
Housewife,	—	1	—	1	1	3
Housework,	—	1	1	—	1	3
At home,	2	—	1	2	—	5
School,	4	1	2	4	8	19
Total, Stay-at-homes,	6	3	4	7	10	30
Laborer,	4	5	8	4	1	22
Factory,	—	1	9	2	4	16
Tailor,	1	1	3	—	3	8
Clerk,	—	1	—	1	1	3
Driver,	—	—	2	—	—	2
Restaurant,	—	—	1	—	—	1
Miscellaneous,	—	—	—	—	3	3
Total, Not stay-at-homes,	5	8	23	7	12	55
Grand total,	11	11	27	14	22	85

According to onsets the first of the eighty-five cases was in the Fourth ward and took sick on the 6th of July, there being no other cases until the 13th when an additional one came down. Between the 13th and 27th of July there were six more cases making a total of eight for the month. In August, September, and October there were twenty-two, twenty-nine, and twenty-six cases, respectively, the last one occurring on October 20th. In August the cases kept occurring one or two at a time until the 22nd, after which time and during the entire month of September and to the close of the outbreak in Ocober, the cases occurred more frequently but in a rather strung-out fashion indicating that the infection was being caused by some continuing source rather than by one single source; in other words, the outbreak was not explosive in character. A table showing the onsets of the eighty-five cases is here given.

TABLE SHOWING DATES OF ONSET OF CASES OF UNDETERMINED ORIGIN.

July	6-1	August	25-1	September	26-1
July	13-1	August	26-1	September	28-1
July	16-1	August	27-2	September	30-3–29
July	17-1	August	29-1	October	1-2
July	24-1	August	31-1–22	October	2-1
July	25-1	September	2-1	October	3-1
July	26-1	September	4-1	October	4-1
July	27-1–8	September	6-1	October	5-2
August	1-2	September	7-1	October	7-2
August	4-1	September	8-1	October	10-1
August	8-2	September	10-2	October	12-4
August	12-1	September	12-5	October	13-1
August	13-1	September	16-1	October	14-2
August	14-1	September	18-1	October	15-2
August	15-1	September	20-5	October	16-2
August	18-1	September	21-2	October	17-3
August	22-1	September	22-1	October	18-1
August	23-2	September	23-1	October	20-1–26
August	24-3	September	25-1		

A careful study of the milk used by these patients was made and the supplies were found to be so varied in each of the wards that on this basis milk may be excluded as being the cause of the outbreak. For instance, in the Second ward out of a total of sixty-three cases of known and unknown origin there were fourteen different milk supplies furnishing from one to five of the cases and in one instance furnishing thirty of the cases, this being a dealer whose routes cover a large section of the southern part of the city supplying milk to thousands of persons. About the same proportion will hold with regard to the other wards in the district. Of the eighty-five cases of unknown origin thirty-three within a month prior to their illness used raw shellfish but these were procured from many different sources.

Raw fruit and vegetables were used by sixty-one of the eighty-five patients and by far the larger number of these obtained these food products either from the curb markets or from the push-cart vendors which is in itself a significant fact and very definitely directs attention to the use of fruits and vegetables in these communities, such articles being procured as already stated principally from the curb markets and from push-cart vendors where they are kept and sold under conditions that are anything but sanitary.

With similar conditions existing at all of the markets it would be natural to suppose that the outbreak would appear with equal force in the vicinity of each one, assuming that the markets were responsible. It turns out, however, that in the territory immediately surrounding the markets that sold chiefly to the Hebrews there were only seventeen cases of typhoid while in the practically similar area around the market situated in the Italian quarter sixty-one cases of typhoid fever were found. This apparent difference is thought to be due to the different methods in which the foodstuffs are handled by these two races. It is said that the Hebrew is in the habit of cooking most of his foodstuffs while the Italian is more of a vegetarian and is accustomed to eating much fruit and many vegetables without cooking. In all of the markets the universal practice is that the prospective purchaser handles the foodstuffs. As the facts thus pointed strongly to the probability that infection had been spread by the handling of the green goods, vegetables were purchased at the Ninth Street curb market and examined at the laboratories of the Department. Raw oysters and clams were also procured from one of the oyster cellars in the neighborhood of the Ninth Street market and examined at the laboratories. The peppers, fennel, and lettuce were obtained from push-carts; the dandelions were bought from a basket sitting in the street, but the celery purchased had been lying on the pavement. The oysters were taken from a trough and had a small piece of ice over them, but the clams were bought direct from the bag and had not been iced. Both the oysters and the clams were in the shell. The report of the laboratories on the examination of these articles follows:

The vegetables consisted of

Peppers,	5
Lettuce,	1 head
Fennel,	4 heads
Dandelion,	1 bunch
Celery,	4 bunches
Oysters,	4
Clams,	4

All of each kind of vegetables were washed in one hundred cubic centimeters of sterile water and one cubic centimeter of this water was plated in one plate of Lactose-litmus agar and in one plate of plain agar.

The total number of all kinds of bacterial colonies and of colonies of *Bacillus coli* in one cubic centimeter of the hundred cubic centimeters of wash water from each kind of vegetable was as follows:

	Total all kinds	B. coli
Peppers,	35,000	600
Lettuce,	90,000	48
Fennel,	48,000	0
Dandelion,	14,000	0
Celery,	50,000	23,000

An examination for other members of the typhoid-colon group of intestinal bacteria was made with all the vegetables but none were found except on the celery and here *B. typhosus* was isolated in pure culture from colonies on Endo's Medium.

In examining the oysters and clams, the clams and oysters were washed in their shells in eight hundred cubic centimeters of sterile water, one cubic centimeter of this wash water was plated on lactose-litmus agar to determine the number of pink colonies or acid producers. Three thousand pink colonies were found, none of which answered the test for B. coli.

One cubic centimeter of the juice of each oyster and clam was plated on lactose-litmus agar to determine the number of colon bacilli colonies to the cubic centimeter. Pink colonies in oyster juice varied from 100 to 1800; in clam juice, 2,400 to 10,800. Twenty B. coli were found in the oyster juice of one oyster and two B. coli in the clam juice of one clam. The others were free of B. Coli.

Juice from the interior of the oysters and of the clams was planted in lactose-bile medium and plated on Endo in an attempt to isolate other members of the typhoid-colon group. None were found.

The laboratory results show colon bacilli in the peppers, lettuce, and celery but in the latter the *Bacillus typhosus* was also discovered, this representing only the third time that the Department's laboratories have found this organism in foodstuffs or water.

When placed in possession of the facts, I announced through the Philadelphia newspapers on November 12, 1915, my findings and conclusions respecting the matter, the statement being as follows:

The unexplained prevalence of an exceptional amount of typhoid fever in the First, Second, Third, Fourth, and Twenty-sixth Wards during the past four months has been made the subject of investigation by the State Department of Health, in co-operation with the City Bureau of Health.

One hundred and forty-eight cases have been reported in this section of South Philadelphia since the first of July. In more than half of these, investigation failed to determine the cause.

The investigation disclosed the fact that the majority of all these cases were clustered in and about three public markets, the South Street Market, the Seventh Street Market, and the Christian Street

Market. These are all curb markets—fruits, vegetables, pastry, clothing, and miscellaneous merchandise of every description are dumped on push-carts and pavements without regard for any sanitary precautions. The patrons of these markets handle and pick over the exposed foodstuffs, thus giving every opportunity for the transmission of disease.

Beginning with a few cases early in the summer, there was a steady increase up to the latter part of October. The greatest number of cases occurred in the immediate vicinity of the Christian Street Market. This market is largely patronized by the inhabitants of the section known as "Little Italy." The patrons of the South Street Market are principally Hebrews, while the Seventh Street Market is patronized in the main by Hebrews and Poles.

While the congestion of population is almost equally great throughout this entire section, and the conditions under which the markets are carried on are practically the same, the State Health authorities were for a time at a loss to account for the exceptional number of cases in the vicinity of the Christian Street Market.

After a thorough investigation, however, Dr. Samuel G. Dixon, Commissioner of Health, announces the following conclusion:

"Our inspectors have found that the different methods used by the Italians and Hebrews in the preparation of their food are responsible for the larger number of cases being found in the vicinity of the Christian Street Market in Little Italy. It is the custom of the Italians to eat many of the fruits and vegetables raw, while the Hebrews cook the greater portion of their food. It is presumably due to this custom that the members of the Italian colony have suffered to a greater extent than the other residents of the district."

The pictures reproduced in this report give a fair idea of the character of the markets and the manner in which they are conducted.

An occurrence such as this gives rise to a doubt as to the economy resulting from handling foodstuffs in such a manner. The markets were established by the city to enable dwellers in the vicinity to secure foodstuffs at a lower rate than is possible when bought from a dealer permanently in business about whom many restrictions are thrown in an effort to guard the commodities that he handles. Apparently, few, if any, restrictions have been placed on the vendors frequenting these markets. Possibly nine-tenths of all the typhoid cases in this section were removed to the hospitals and to this action, no doubt, is due the fact that the epidemic was not more widespread. But the question arises as to whether the loss sustained by the community in one outbreak of typhoid such as this does not more than offset the possible benefit derived by the individual householder through the lower prices at which the curb market men are able to sell their produce.

While the investigation was going on officials of the water bureau made a verbal request to the Department's representative to be permitted to reduce the amount of chemical disinfectant being applied to the public water supply at the various filter plants, on the ground that the danger of an outbreak of water borne disease seemingly had passed and the funds supplied for this purpose were nearly exhausted. Pertaining to this request a letter was addressed to the Chief of the Water Bureau by the Commissioner of Health on November 17, 1915, in which the attention of the water department was also called to the necessity of sterilizing new mains before the water was allowed to be served to the public through them. The letter was as follows:

November 17, 1915.

"Mr. Carlton E. Davis, Chief, Bureau of Water, City Hall, Philadelphia, Pa.

"Dear Sir: Relative to your verbal request, that because of a shortage in your present appropriation, the amount of chemical disinfectant applied to the public water supply at the various filter plants be reduced to the amount which you were applying during the spring and summer months, I wish to say that if the result of the bacteriological examination of samples of your filtered water indicates that such reduction can safely be made, this Department will interpose no objections excepting in the case of the Torresdale plant. At this latter point I believe that the amount of chemical germicide must be continued at a maximum until construction work on the sedimentation basins is completed. The stirring up of the river mud in the vicinity of your intake causes turbidity in the water which places an additional burden on your filters and increases the danger of polluted water passing into your distributing system. The results of your laboratory examinations indicate the necessity of adding the germicide at the present high rate at this plant. I am sure that the city authorities will not care to take the responsibility of not providing the funds necessary for the purchase of those chemicals when they thoroughly understand the necessity for their use.

Also, I wish to call your attention to the danger incident to the use of water from new extensions of your distributing system where the pipes have been lying in the streets or in your storage yards for some time before being incorporated into the pipe lines. I understand that before allowing service taps to new lines you flush the piping and endeavor to disinfect the water by the use of hypochlorite of lime powder. I believe that the ciy should purchase apparatus which will permit adequate disinfection of each new pipe line and that your Bureau should insist upon the use of this apparatus prior to placing such lines in service.

Very truly yours,

SAMUEL G. DIXON."

That the efforts of the State Health Department along this line met with success is evidenced by the reply to this communication received on November 18, 1915, a copy of which follows:

"November 18, 1915.

"Dr. Samuel G. Dixon, Commissioner of Health, Harrisburg, Pa.

"Dear Sir: I beg to acknowledge receipt of your letter of the 17th with reference to the use of chemical disinfectant. Your instructions regarding this matter will be followed by the Bureau of Water. The Bureau of Water fully agrees with your conclusions and under the present conditions, particular and unusual attention shall be paid to the output of the Torresdale plant.

Within the past few days the Bureau has awarded a contract to the Electro Bleach Company for furnishing a portable chlorine plant suitable for applying disinfectant in the pipes under pressure. We believe this will be useful in sterilizing new mains and may be more serviceable than our present use of the hypochlorite of lime powder. The use of hypochlorite of lime powder is our present standard and is being used continuously on new work.

In connection with the new mains laid for the improvement of the water supply of South Philadelphia, we have had opportunity to flush out a number of dead ends by opening these ends so that they could discharge freely. We have succeeded in thus removing a very large amount of sediment.

We are now engaged in a study to determine whether with available funds for the improvement of the water supply of South Philadelphia we can eliminate still more of these dead ends and incidentally provide for a thorough flushing of a larger area. It is the belief of the Bureau that in effect the whole of the pipe system in South Philadelphia is a dead end and that such has been the condition for many years, including the ante-filtration period.

It seems impossible to flush the pipes through hydrants in a manner to remove the sediment which has thus collected in this territory for the past many years. We propose to exert every effort to open pipes at as many points as possible where flushing into the sewers can be systematically carried out. Doubtless this will result in a more pleasing condition of the Water Supply though whether it will have any direct bearing upon the sanitary quality of the water may be open to question. Presumably any sediment now in the pipes must be free from pathogenic germs.

Very truly yours,

C. E. DAVIS,
Chief of Bureau."

It is pertinent to note that the method of handling foodstuffs in these curb markets is contrary to a regulation adopted by the Advisory Board of the Department of Health at Harrisburg on the 14th day of January, 1915. As described above, the articles for sale are exposed and are not properly screened, and in a number of instances are placed directly on the sidewalk or pavement. The rule referred to is this:

"No firm, person, or corporation shall expose for sale on any sidewalk or pavement or other exposed place any fruit, vegetables, or other articles of food which are eaten uncooked, unless such fruit, vegetables, or other articles of food are thoroughly screened and protected from flies and unless they are on elevated stands at least twenty-four inches above the level of the side-walk or pavement."

PENNSYLVANIA HEALTH BULLETINS.

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservaion of Health. An Address before the Duquesne Chamber of Commerce.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address before the Pennsylvania State Educational Association.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address before the Welfare Efficiency Conference at Harrisburg.
52.	Nov.	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address before the State Board of Agriculture.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	rev. Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health in Pennsylvania.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

◆

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 77. HARRISBURG, PA. JANUARY, 1916.

THE PENNSYLVANIA DEPARTMENT OF HEALTH EXHIBIT AT THE PANAMA-PACIFIC INTERNATIONAL EXPOSITION.

The laws under which the Pennsylvania Department of Health was established were enacted in 1905. These laws consisted of an act creating a Department of Health, an act to preserve the purity of the waters of the Commonwealth, and an act to provide for the registration of vital statistics.

By the statute creating the Department of Health the General Assembly established the highest type of co-operative centralized health authority, to be vested by appointment of the Governor of the Commonwealth in a Commissioner of Health and an Advisory Board who should be in direct control of the Department in all its manifold activities, excepting in the regulation of the disposal of the sewage which was placed under the supervision of the Governor, the Attorney General, and the Commissioner of Health acting together. The Commissioner of Health has supervisory control in health affairs over the entire population of the State and is specifically charged with the direct administration of public health matters in the rural districts of the State, representing a population of more than two and a half million individuals.

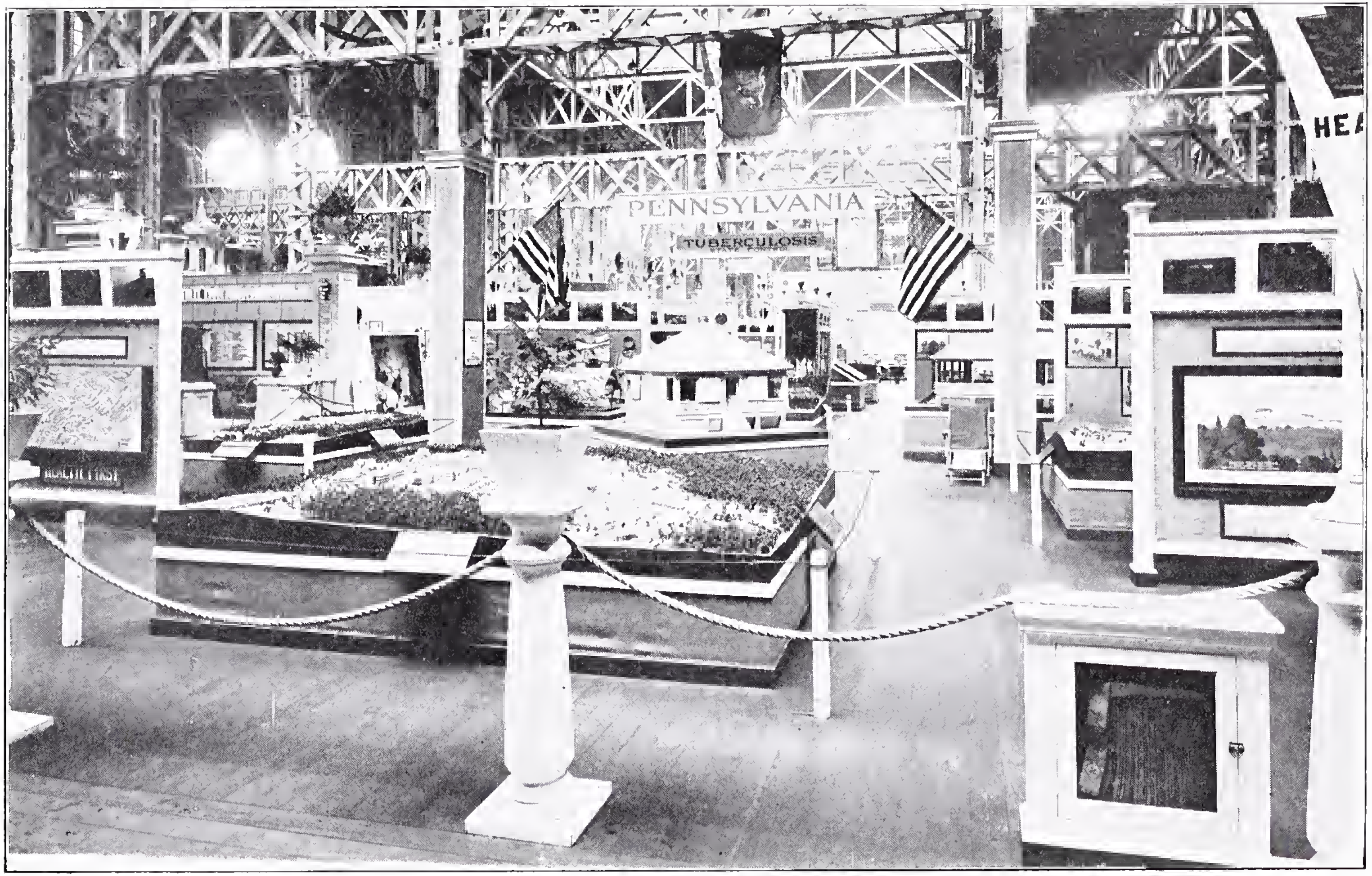
The legislation of 1905 creating the Department, vesting authority in the Commissioner of Health, to preserve the purity of the waters of the State, and providing for the registration of vital statistics, with facilities for carrying out such legislation, was further supplemented in 1907 by acts relating to the management and control of tuberculosis; by a State Sanitary Code in 1909; and in 1911 by the inauguration of a system of medical inspection of children of school age in the fourth class (rural) districts of the State.

In addition to the duties imposed upon him by these statutes, the Commissioner of Health is, by virtue of his office, a member of the State Quarantine Board, having control over maritime shipping; of the State Bureau of Medical Education and Licensure, having control of medical education and the licensure of Practitioners of Medicine, Surgery, and Midwifery; of the Dental Council having to do with the examination and licensure of Practitioners of Dentistry; and of the State Water Supply Commission, having to do with the equitable distribution of the waters of the State.

Preparations for an exhibit by the Department of Health in the Panama-Pacific International Exposition at San Francisco could not be undertaken until the autumn of 1914 was well advanced. On the twentieth of October the Pennsylvania Commission voted to set aside a sum of money, not to exceed $20,000, for this purpose. This amount was small as compared with the appropriations of some other States conspicuous in the promotion of the public health, being in fact less than a quarter of that of an adjoining State, and the time for preparation was short. By strenuous effort the development of the various parts of the exhibit was begun and carried on. Numerous models, diagrams, and photographs had to be made, and many charts were needed to illustrate such phases of departmental activity as seemed suited to a public display. For this purpose the necessary workrooms were established at the corner of Nineteenth and Arch Streets, in Philadelphia. Early in April it became possible to send forward our well-boxed material, and on the twenty-first the shipment reached San Francisco. The exhibit was then installed as rapidly as possible, some two months after the nominal opening of the exposition, but quite as soon as that of many of our neighbors.

The exhibit of the Department of Health at the Panama-Pacific Exposition was housed in the magnificent Palace of Education. No building at the Exposition contained more in the way of instruction and inspiration to men and women who are interested in the real welfare of the human race and the betterment of mankind, than this superb creation of the builder's art. No part of this wonderful building lent its appeal more strongly to these same thousands of men and women—the people who think—than the excellently complete exhibit of the Department of Health of the Commonwealth of Pennsylvania.

Those who saw it invariably exclaimed "Pennsylvania is showing the way in sanitation, in school hygiene, in welfare work, to all the states, and to the nations." "How do you do it?" "How do you



A General View of a Part of the Exhibit as Set up at San Francisco.

get the money to do all this grand work?" They stared with wide-open eyes when they learned that all this has been accomplished practically in a decade, that all is due to the tireless energy, the tactful persuasion, and the wise forethought which the Governors and State legislatures have shown, sometimes in the face of no mean opposition, in advocating the view that Pennsylvania could make no better investment of its money than to invest it in those things which make for the health and welfare of the citizens of the State. For some time past Pennsylvania has been "The Keystone of Vital Statistics." It is today the "Keystone of Sanitary Work" in the United States.

One could not enter the Palace of Education without being drawn instinctively to the immense booth on all sides of which hung the spotless white pennants with the large, attractive, green colored keystone; while from the centre beam and at each end were draped the Stars and Stripes, side by side, with the beautiful blue silk flag of the Commonwealth of William Penn.

Almost the first thing that arrested the eye of the visitor was the large white banner on which was inscribed the striking truth that "the varied industries on which we depend for our comfort, the wealth which enables us to enjoy them, and the arts of civilization which adorn and diversify our lives are but the fruitage of the tree whose root is health."

The exhibit vividly and graphically portrayed many details of the activities of the Department, and may be roughly divided into three separate parts:—School Hygiene, Typhoid Fever and Sanitary Engineering, and the Tuberculosis work.

SCHOOL HYGIENE.

Here beautiful pictures showed the actual inspection of rural school children; of these Pennsylvania inspects approximately four hundred thousand a year. It is the only state in the Union which has undertaken the medical and sanitary inspection of rural schools, on such a vast scale, under state supervision.

The medical inspection concerns itself with the general physical condition of the child and endeavors to determine whether it has defects of vision or hearing or any other common form of abnormality such as is known to hamper the progress of children in school. The sanitary inspection is made of the buildings as to lighting, heating, ventilating, sanitary conveniences, and water supply.

On entering the section for school hygiene, one saw a relief map of the State, showing the location of the rural schools. Then in large photographic transparencies, lighted by electric lights placed behind them—all the transparencies were so lighted—was seen the arrival of the Medical Inspector at the rural school; the testing of vision by the inspector and the examination of cervical glands. Photographs, sixteen inches by twenty, were also displayed, showing the inspector and teacher taking a record of the temperature and pulse rate of the pupil; testing his vision, and examining the eyes for evidence of conjunctivitis, trachoma, etc., with a large legend in white and black wherein appeared the startling fact that nearly seventy-three per cent. of all these school children have some form of physical defect which influences their mental and physical progress.

Three transparencies then came in view as one moved on, showing the free school dental clinic, an old rectangular Pennsylvania schoolhouse, and an old octagonal form of schoolhouse.

Four large photographs adorned the sides of the screen, showing how the blackboard looks to moderately near-sighted children, to average near-sighted children, to extremely near-sighted children, and to children with normal vision. The legend above these photographs brought the pertinent fact to the mind of the onlooker that twenty-four in every hundred of all school children have defects of vision which retard their mental progress.

Three large transparencies showed the old octagonal schoolhouse restored; a school garden, graphically picturing an old stone schoolhouse and grounds converted into an agricultural school centre; and a class receiving manual training in the school.

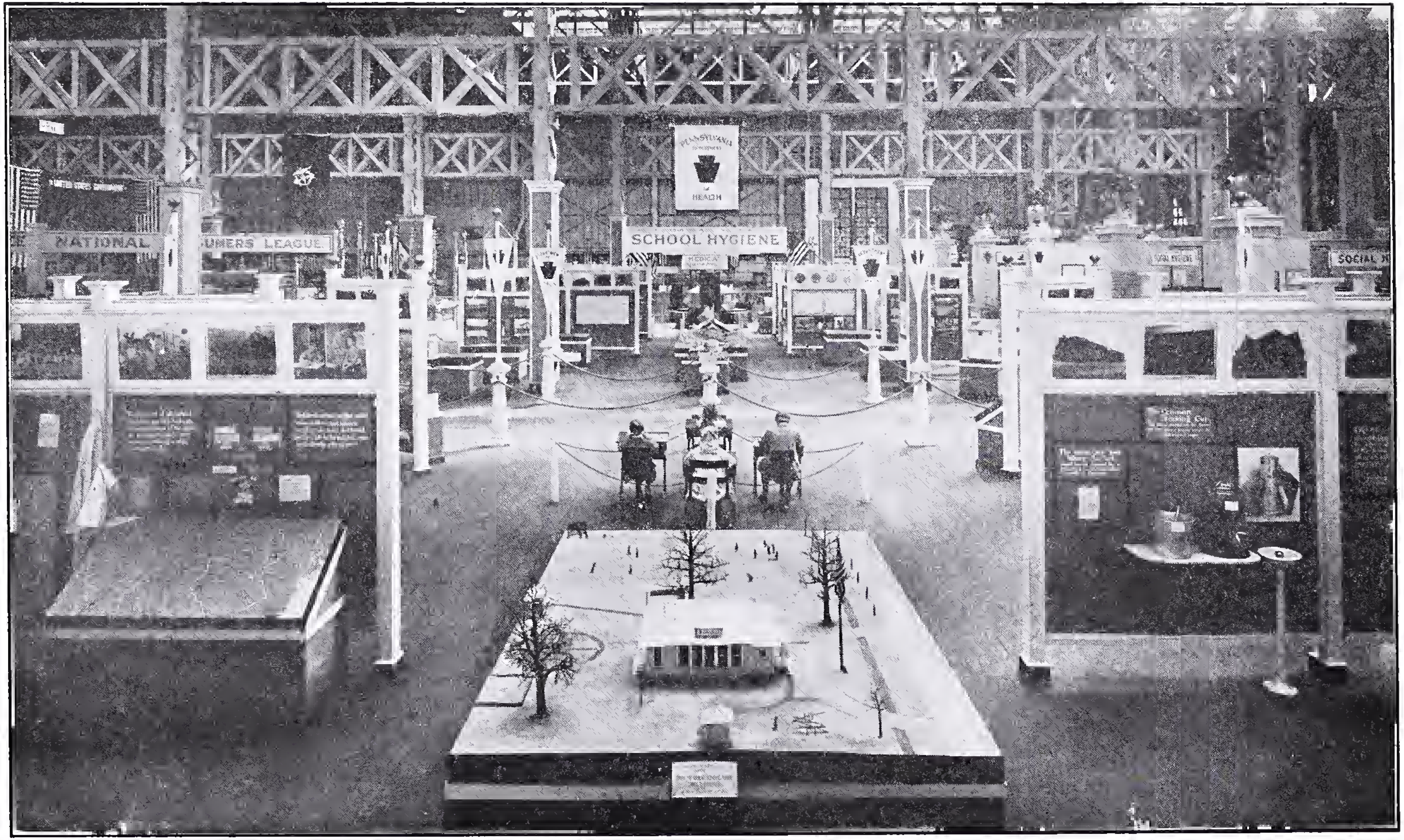
A photograph depicted the Medical Inspector testing the school child's hearing by the whispering test, and a legend close by informed the visitor that over three per cent. of all school children have some degree of defective hearing.

A public school dental clinic was pictured in a large photograph and the visitor learned from another legend that almost fifty-two per cent. of all school children have defects of the teeth which interfere more or less with speech and the proper mastication and digestion of food.

Further along in this exhibit were eighteen sets of mouth-casts to show irregularities in the formation of the dental arches due to lack of attention given the temporary teeth. In a series of mounted specimens were seen:—the eruption of the temporary and the permanent teeth; the twenty temporary teeth; the thirty-two permanent teeth; the palate and dental arches of a child and of an adult; a dissection showing the blood and nerve supply to the teeth; the mandible or lower jaw of a child, of an adult, and of an aged person; and the toothless jaws of old age.

Turning again to the medical inspection service, one saw in three different photographs an Inspector taking a throat culture; a school nurse taking physical measurements; and instruction being given to the mother as to the preservation of the school child's health.

Parents or guardians of children are notified directly as to the existence of physical defects in the child, and if the family circum-



Model of a Modern Rural School, and Figures Showing Postural Defects Caused by Unsuitable Desks and Chairs.

stances are such as to require it, free dispensary service is at their disposal.

Models of the head and neck, showing them in section as they appear normally, and when the upper air passages are occluded by adenoids and enlarged tonsils, and with a diphtheritic membrane on the tonsils and posterior nares, made up an interesting part of the exhibit. The legend connected with this portion of the exhibit set forth the fact that thirty-five per cent. of all these school children are affected with some occlusion of the upper air passage which provokes mouth-breathing and its consequent ills, such as frequent attacks of tonsillitis, nasal and pharyngeal catarrh, and lung affections.

Improper or under-feeding of school children is a prolific source of retardation and physical deficiency, and for that reason transparencies showing children buying and eating lunches for three cents or a penny, or even obtaining free school lunches provided for undernourished children, were made a part of this school health exhibit.

The old time schoolhouses, of logs, brick, or stone, with their bad lighting, bad heating, and bad ventilation were contrasted with the modern consolidated rural school buildings in sixteen large photographs. The evolution of such modern schools with the passing of the old type of isolated buildings and crude equipment marks an epoch in school hygiene.

Some of the characteristics of a thoroughly modern rural school were shown in a large model of such a school properly supplied with playgrounds and well screened outhouses. This model was carefully prepared to indicate how the lighting and heating should be carried on in a satisfactory fashion. Near at hand was a group of four life-size wax figures of school children which attracted much attention because they illustrated how proper and improper postures in the school room are determined by the desks and chairs which are provided.

Photographs and transparencies of modern school buildings with their modern appointments, such as auditorium, library, and gymnasium, as well as of the modern playground with its equipment of swings, see-saws, maypoles, etc., and the pupils in the act of enjoying them, keenly interested many visitors. Open-air sports, gymnastics, and systematic recreation are newly recognized adjuncts of education. Instruction in domestic science is becoming a very important branch in the school curriculum and was illustrated by a large photograph of a number of little girls learning to make bread.

Six photographs illustrated vividly the proven value of open-air schools in the mental as well as physical development of children who under ordinary conditions would have been deficient in both respects.

TRANSMISSIBLE DISEASES COMMON TO SCHOOL CHILDREN.

A series of seventeen transparencies in color, illustrating the eruption of smallpox in its various stages, and the protective value of vaccination was of great interest to all the visitors to the exhibit of the Department. These life-like transparencies served the purpose of impressing upon the mind of the beholder the fact that in times of smallpox epidemics the children of school age who are required by law to be vaccinated are practically immune to this disease.

Twenty realistic transparencies in color illustrated beautifully the eruptive fevers and transmissible affections common to school children, such as scarlet fever, measles, chicken pox, impetigo contagiosa, diphtheria, conjunctivitis, scabies, ring worm, entamoeba buccalis (concerned very largely in a disease of the mouth, teeth, and gums), acne, trachoma and the trachoma bodies (the supposed etiological factor in the causation of this disease), pin worm, beg bug, head louse, body louse and their eggs.

THE PUBLIC HEALTH LABORATORY.

In one of the sections of the Department of Health reservation, separated from the Housing Division section on one side by wooden screens painted in white at the top of which were places for sixteen large transparencies electrically illuminated, was a laboratory, completely equipped with the necessary apparatus for making clinical examinations such as pertain to public health work.

Cultures of bacteria of various kinds and pathogenicity were exhibited in sealed culture tubes, and the different forms of microorganisms found in the scrapings from beneath the finger nails, from the surface of the body, from hair, from paper-money, from floor sweepings, etc., were grown on large plates of culture media from day to day and the bacterial colonies exhibited to the visitors to the booth.

Ten large photographs reproducing some of the work being done in the laboratories of the Pennsylvania Department of Health located at 2000 Arch St., Philadelphia, were displayed on the walls of this laboratory booth. These views illustrated the method of the microscopical examination of slide preparations of pathological exudates; the counting of bacterial colonies on culture plates made from water suspected of causing disease; the sterilization of glass ware used in the laboratory tests; the method of examining sputum for tubercle bacilli; the growing of tubercle bacilli in flasks of culture medium in the incubator room built especially for that purpose; a clerk in the laboratory office numbering specimens; assistants packing syringes of tubercle bacilli products for shipment; the preparation of sections of tissue for histological examination; the shaking machine used for the purpose of finely emulsifying suspensions of bacteria, especially of tubercle bacilli to be used in the manufacture of the tubercle bacilli extract or "Fluid of Dixon."

A very interesting part of the laboratory exhibit was the setting forth by means of the specimen itself and the necessary apparatus each step in the preparation of specimens for the work in histopathology. The specimen was taken as it comes to the laboratory, put through the various hardening solutions, oils and paraffines and warming oven, mounted on the block, and sectioned with the microtome. Then was shown the mounting of the section on the slide, drying in the oven and staining, after all of which procedures it was ready for microscopic examination.

Sputum and water examinations were also detailed step by step with apparatus actually used in the Department's laboratory, from the time and manner of receipt at the laboratory until the final examination, leading immediately to a report of its result, was ready to be made.

The preparation of Tubercle Bacilli Extract, or "Fluid of Dixon," was shown in each stage of its manufacture, from the growing of the tubercle bacilli in the flasks of culture medium to the finished product wrapped and ready for distribution and use.

A series of twenty-six transparencies in color made from photomicrographs illustrated various forms of disease-producing bacteria and the morbid processes produced by them. These transparencies showed the different forms of tubercle bacilli; tubercle in lung tissue; a walled-off tubercle in lung tissue; conglomerate tubercles in the lung; tubercles in the omentum; tuberculous ulcer of the ileum; and the tubercle bacilli in the sputum. Fly tracks on a gelatin plate showing vast numbers of bacterial colonies around each of them revealed in one of these transparencies what the filthy house fly carries on his legs. Typhoid bacilli with and without flagella were pictured on two other transparencies. Diphtheria bacilli; colon bacilli; pneumococci; tetanus bacilli; micrococcus pyogenes, the micro-organism causing boils, carbuncles, and other infections; micrococcus tetragenus, supposed to aid in cavity formation in pulmonary tuberculosis; foetal syphilis; and phagocytes, the scavengers of the blood, with ingested bacteria, were shown in this series.

The transparencies also included one of interstitial pancreatitis; one of myxo-sarcoma; atrophic cirrhosis or "gin drinker's liver;" focal necrosis of the liver after typhoid; cancer of the mammary gland; chronic glomerulo-nephritis after scarlatina.

The photograph of the original apparatus used by Dr. Samuel G. Dixon in the preparation of the Tubercle Bacilli Extract or "Fluid of Dixon" (Medical News, 1890), and publications concerning the same, drew a great deal of attention from visitors to the laboratory section. This "Fluid of Dixon" is used as one of the tubercle bacilli products in selected cases in the three State Sanatoria for tuberculosis and the State Tuberculosis Dispensaries.

From the Division of Distribution of Biological Products came packages of diphtheria antitoxin, products of the tubercle bacillus, and vaccines. A large colored chart set forth the mortality from diphtheria in patients treated with an antitoxin during the first four days after the onset of the disease as compared one day with the other, and the mortality when an antitoxin is not given. This chart was prepared to show more particularly the results obtained in 1911 when the systematic use of large doses (5,000 units) of an antitoxin began.

Another relief map of the State was shown wherein the location of the 676 stations for the distribution of biological products was graphically demonstrated. Antitoxins for diphtheria and tetanus, smallpox vaccine, and tubercle bacilli products are distributed by the State to the indigent without cost upon application by physicians.

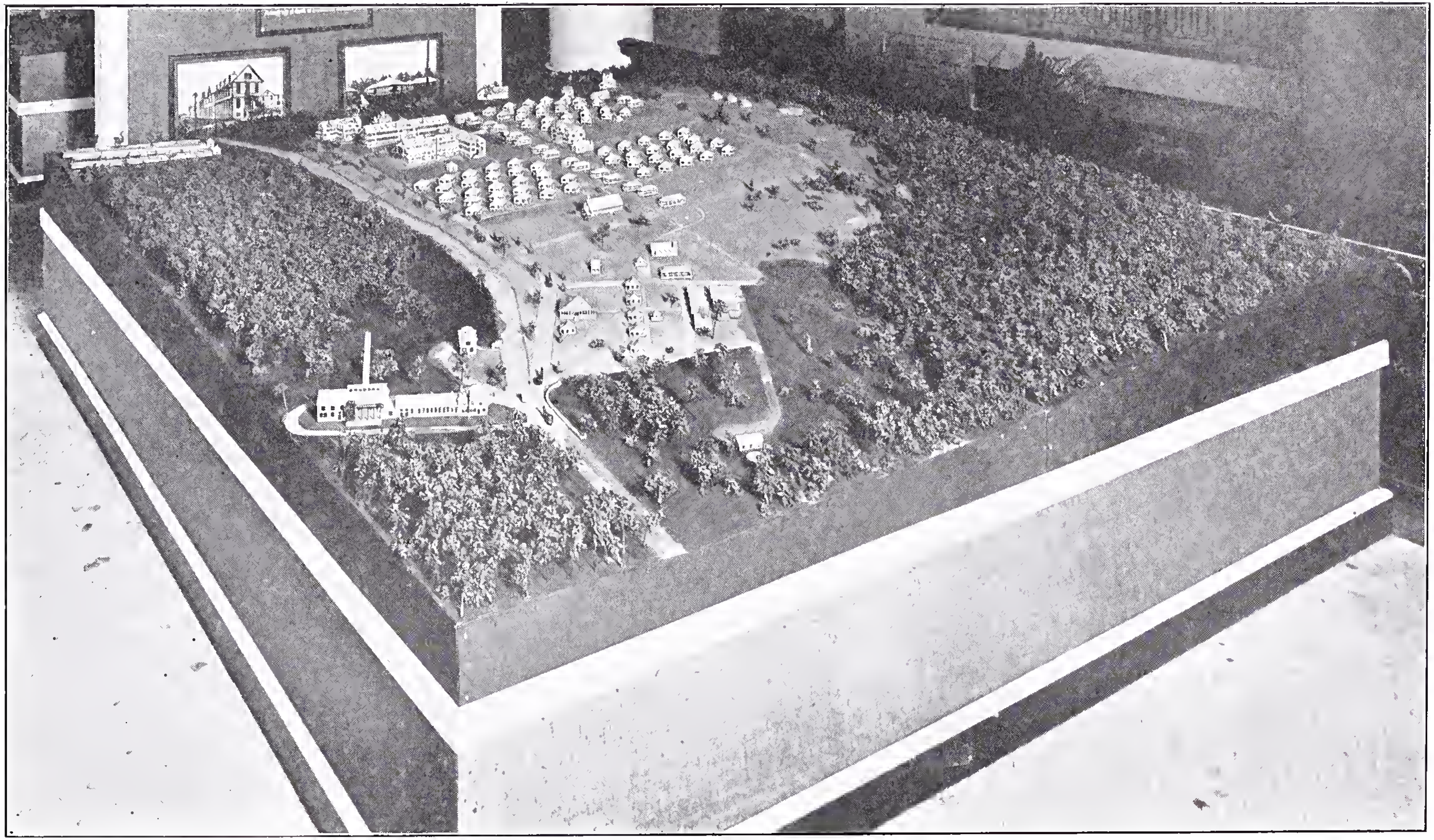
In this exhibit was a life-size model showing the dress and apparatus used by a departmental Health Officer for disinfection after communicable diseases, and also life-size models showing the possibilities of transmission of communicable disease through the towel and other material used in common by different individuals.

Tuberculosis and its Prevention.

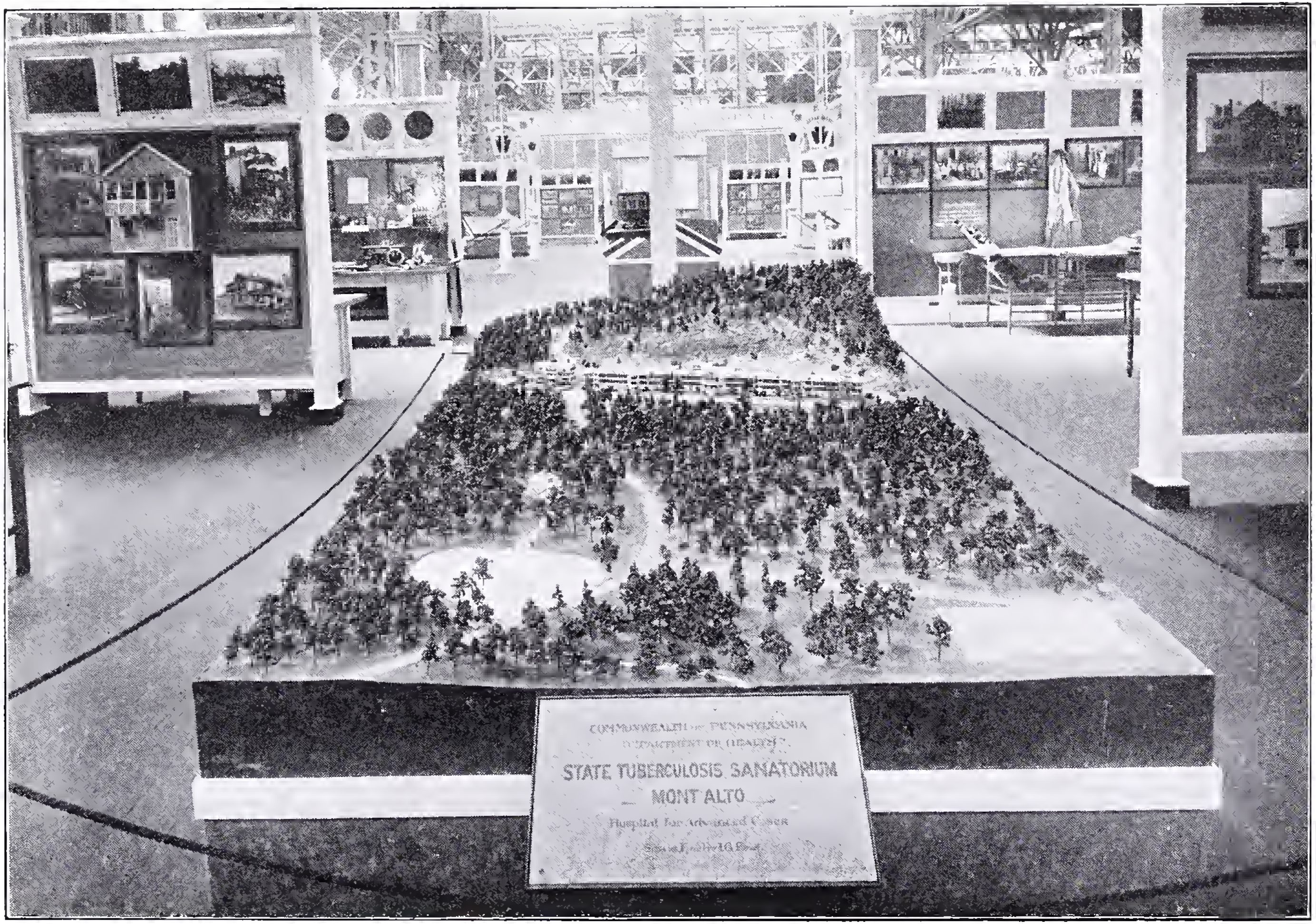
No part of the splendid exhibit attracted more attention than that which portrays by models, pictures, or transparencies the wonderful work of Pennsylvania for the care of the victims of the Great White Plague, and the work that it is doing to educate the people in the measures necessary for the prevention of this great scourge of humanity.

Beautiful models, most realistic, were shown of Pennsylvania's three large Sanatoria for the care of those afflicted with this terrible disease. Together the three institutions can accommodate approximately two thousand patients. These magnificent models brilliantly lighted with tiny electric lights with which they have been equipped became the focus of attraction of the Palace of Education. Types of cottages at the Camp used by the patients in the incipient stages of the disease, were reproduced, and every detail shown, even to the miniature bed, bed clothes, and wash-basin in each room.

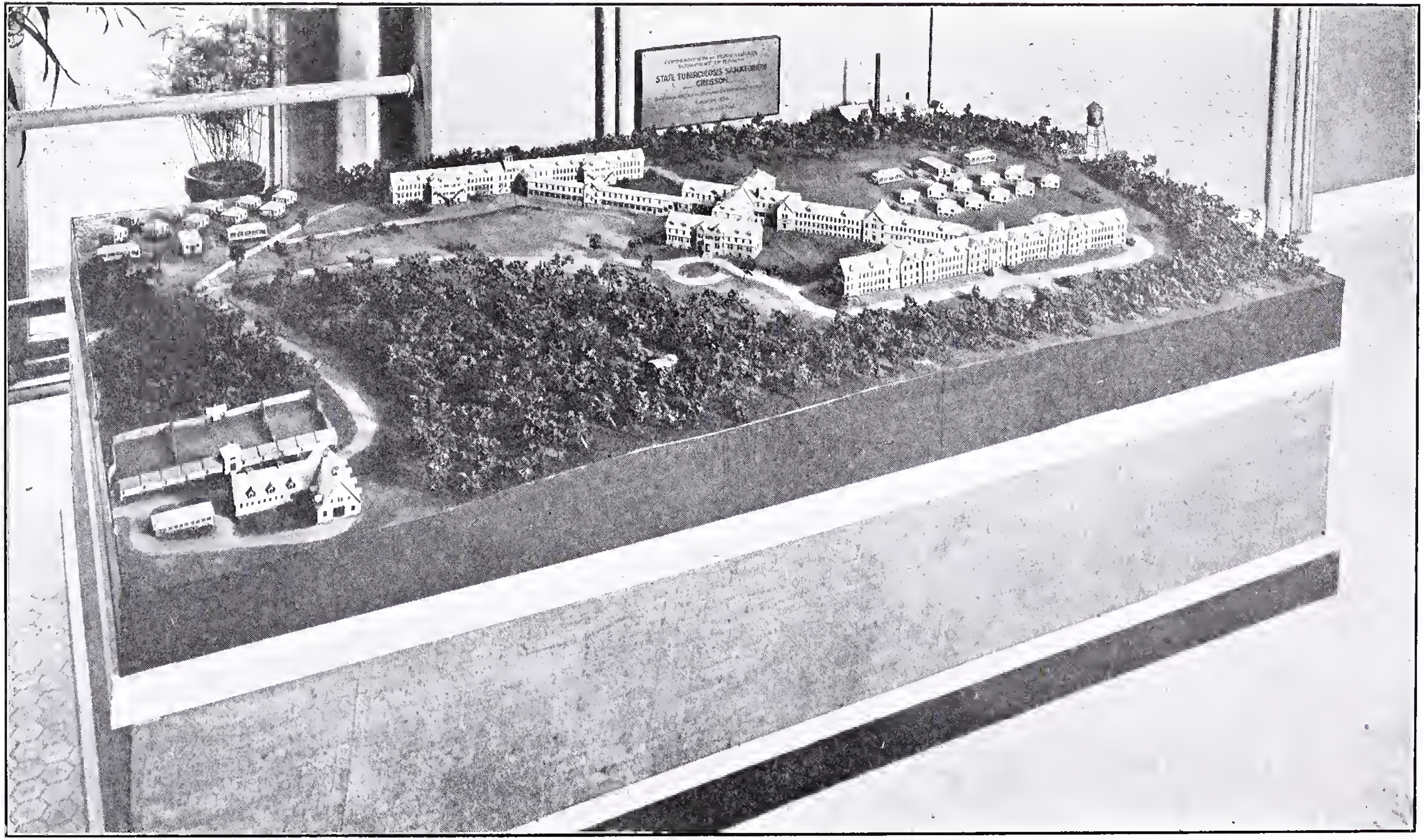
The tuberculosis work of the Pennsylvania Department of Health is composed of two distinct parts; first, that done in its three modern sanatoria for the treatment of the disease; and second, that done in its one hundred and fifteen dispensaries maintained in the different counties throughout the State. Viewing the exhibit in more or less detail the visitor's attention was first arrested by models of the Sana-



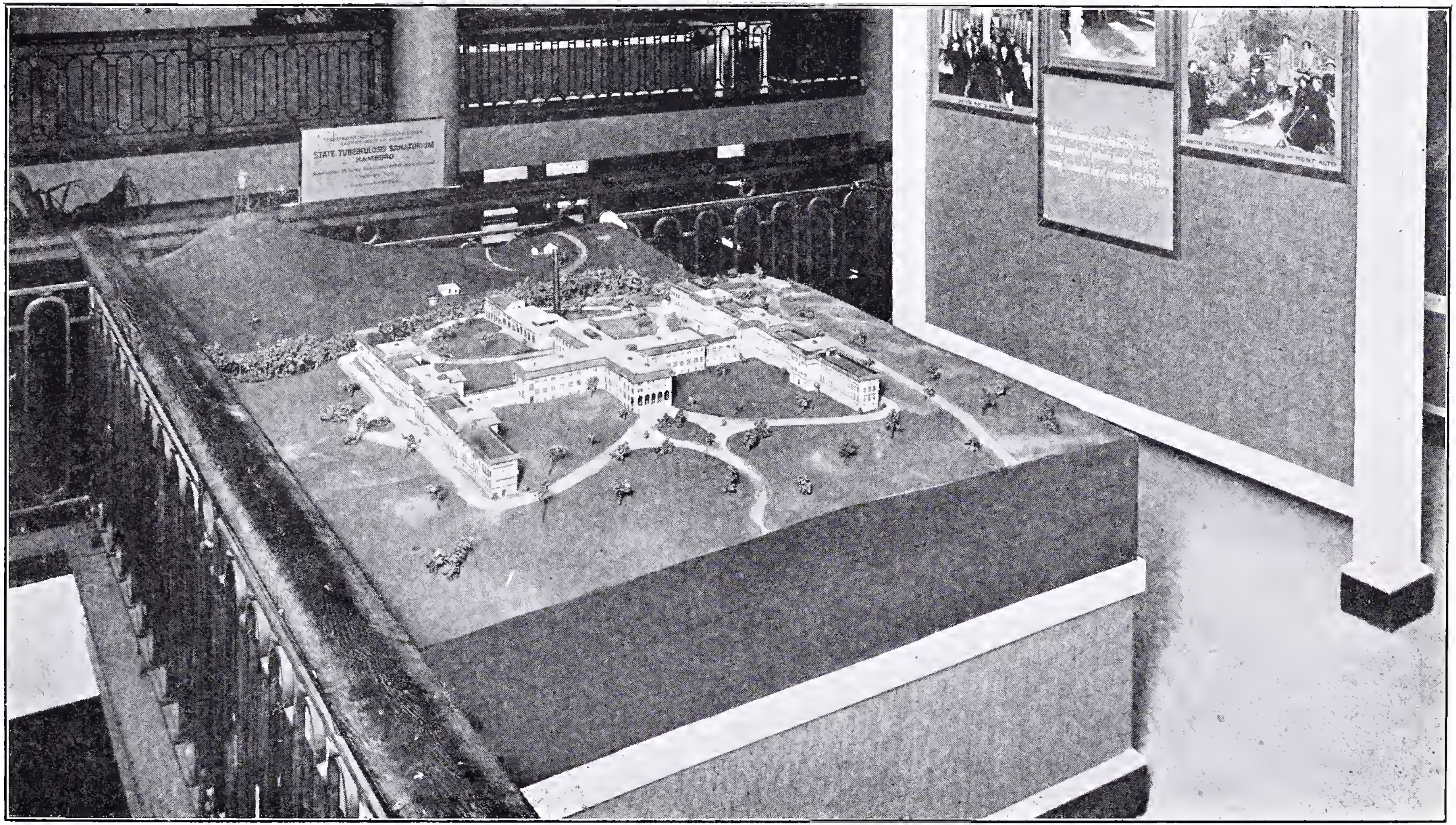
Model of the Pennsylvania State Sanatorium for Tuberculosis, No. 1, Mont Alto.


COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
STATE TUBERCULOSIS SANATORIUM
MONT ALTO
Hospital for Advanced Cases

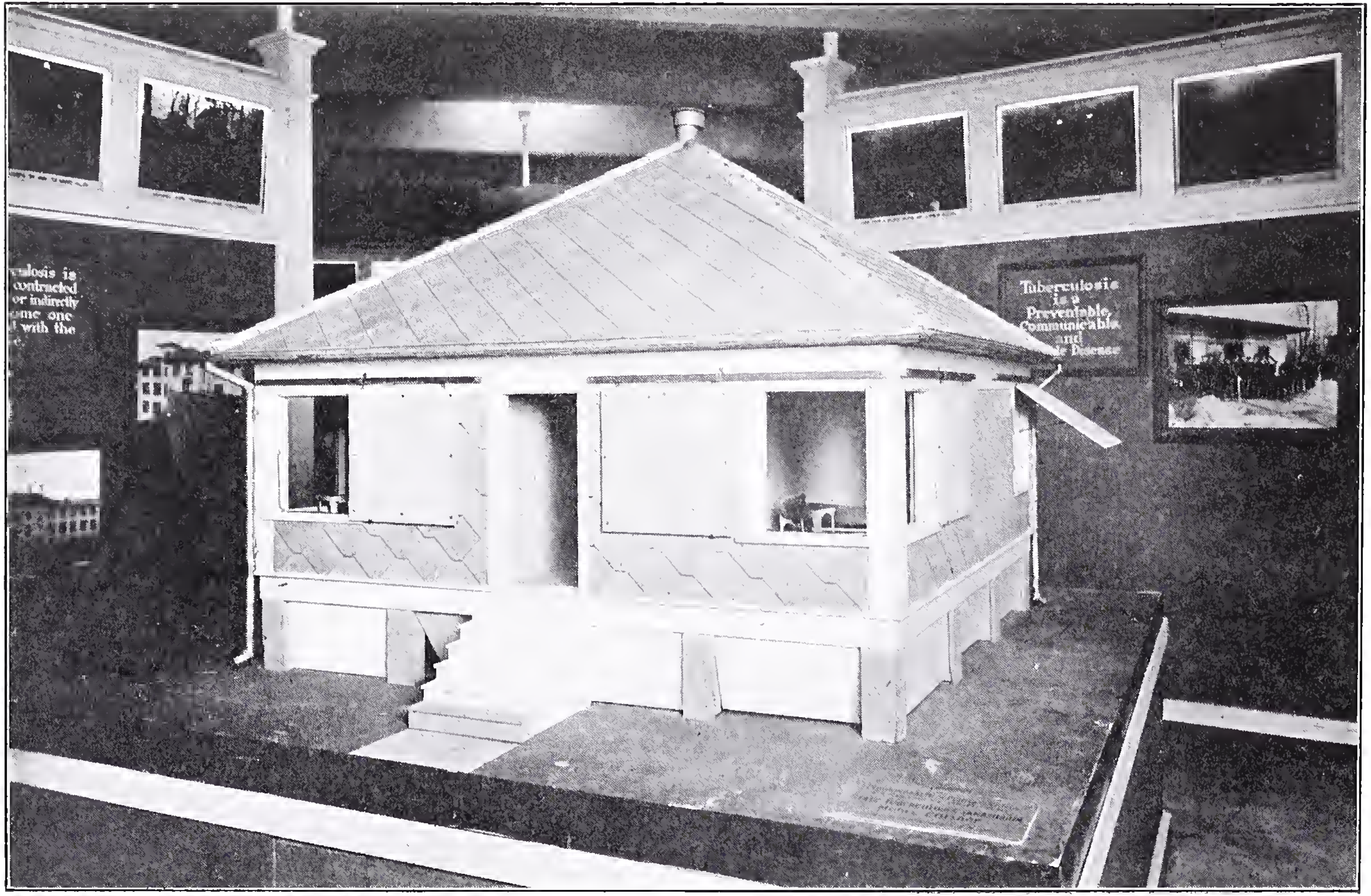
Model of the Hospital for Advanced Cases at Mont Alto.



Model of the Pennsylvania State Sanatorium for Tuberculosis, No. 2, Cresson.



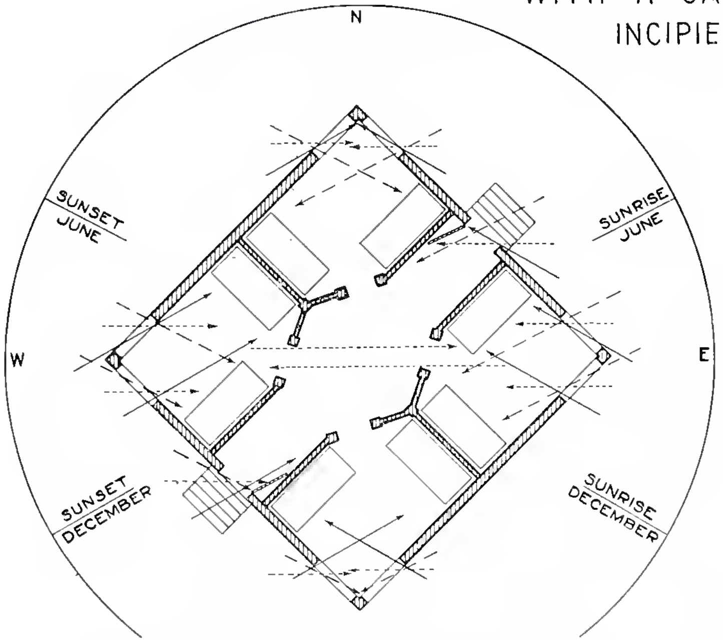
Model of the Pennsylvania State Sanatorium for Tuberculosis, No. 3, Hamburg.



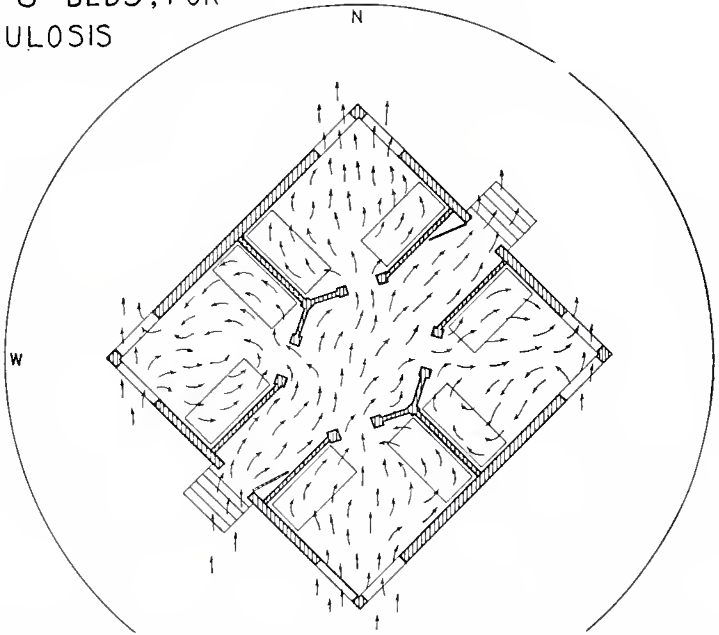
The Model Cottage.

PENNSYLVANIA DEPARTMENT OF HEALTH

FLOOR PLAN OF COTTAGE 27 FEET SQUARE
WITH A CAPACITY OF 8 BEDS, FOR
INCIPIENT TUBERCULOSIS



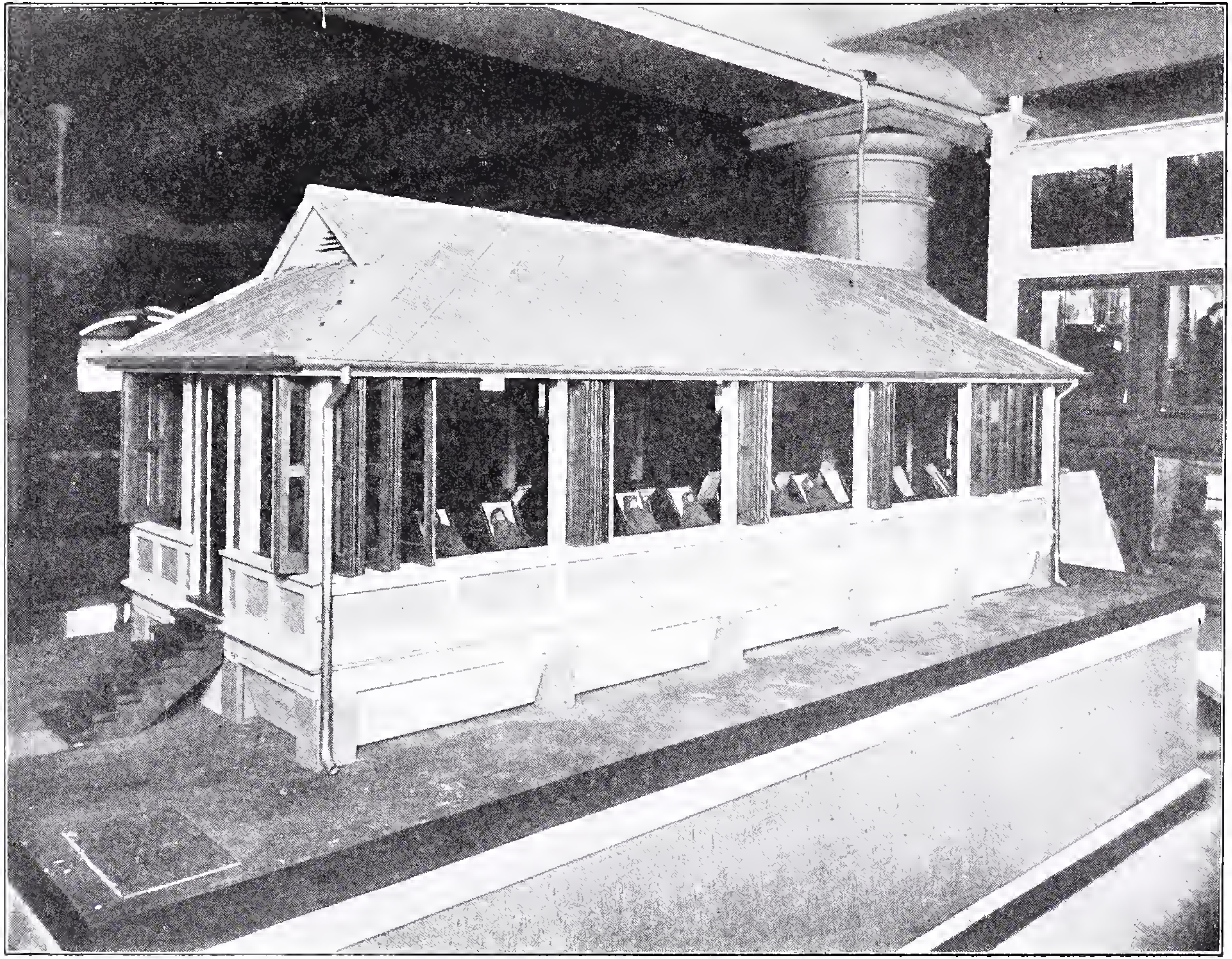
THIS SHOWS THE PATH OF THE
SUN'S RAYS THROUGH THE COTTAGE
AS THE SUN PASSES ALONG FROM
ITS NORTHERN TO ITS SOUTHERN QUARTER



THIS SHOWS THE MOVEMENT OF AIR THROUGH THE
COTTAGE WHEN COMING FROM THE SOUTH.
AN EQUALLY COMPREHENSIVE MOVEMENT TAKES PLACE
WHEN THE WIND COMES FROM ANY DIRECTION OF THE COMPASS.

THESE CONDITIONS ARE DUE TO THE PLAN OF THE COTTAGE AND TO THE FACT THAT
ITS CORNERS ARE DIRECTLY TO THE NORTH, SOUTH, EAST AND WEST.

Floor Plan of the Model Cottage.



The Open Air Pavilion at Mont Alto.

Screen Displaying Various Exhibits Relating to the Treatment of Tuberculosis by the Department.

toria, beginning with that at Mont Alto. A large model, nine feet by twelve, represented the topography of this, the oldest of the three sanatoria—the initial attempt of the State to provide for the indigent sufferers from tuberculosis. It was opened in a small way for the reception of patients in 1907 and was completed as it exists today, with its total of one hundred and eight separate buildings, in 1912. This sanatorium is located in the midst of the Blue Ridge Mountains in the heart of the State Forestry Reservation of fifty-five thousand acres. Down to the first of July, 1915, a few more than fourteen thousand patients had been treated in this institution, more exactly, 14,043. The principal buildings are a central dining hall with tables to seat eight hundred persons; a children's building, accommodating one hundred and twenty-five; a dispensary building, containing the offices of the staff; a completely equipped operating room, adjoining which are rooms for the accommodation of twenty-five patients; nose and throat department; milk and egg station for "between-meal" feeding; administration building; and a home for the nurses. A central steam plant furnishes heat and light to all the buildings; water is supplied from the private plant of the Sanatorium; and plants for the disposal of sewage and the incineration of garbage are parts of the equipment.

Models were also shown of the hospital for advanced cases at Mont Alto, of the model cottages, with complete furnishings, of the tents, and of the Open Air Pavilion exhibiting patients wrapped in blankets sitting in rest-chairs taking the "cure."

Next was seen a large model of the Sanatorium at Cresson. This Sanatorium, the second to be built, is located on a reservation of four hundred and fifty acres at the highest point in the Allegheny Mountains. The land on which it stands was presented to the State for this particular purpose by Mr. Andrew Carnegie, who, impressed with its rugged beauty of forest, mountain, and valley, had contemplated building a house for himself at this place. The main buildings are of native sandstone with asbestos sheathing on the upper stories and asbestos shingles. The cottages are uniform in size and equipment with those at Mont Alto.

The State Sanatorium for Tuberculosis at Hamburg, the newest of our three Sanatoria, in fact only completed a couple of months before the exhibit was made, was also seen in a model of the same size as that of the Cresson Sanatorium. It is situated on a tract of somewhat more than three hundred acres along the southern edge of the Kittatinny, one of the Blue Ridge mountains, at an elevation of five hundred and sixty feet above sea level. The building is of stucco on hollow tile, with tiled roof gardens on the main wings as solaria. The unit is complete with heat, power, water supply, and sewage disposal and incinerating plants.

Life-like transparencies and photographs in great numbers demonstrating the life and activities among the patients indoors and out-of-doors, views of the different buildings of the sanatoria, interiorly and exteriorly, and of the rugged country thereabout fascinated the eye of the visitor for hours at a time. The views thus depicted brought to one's consciousness the realization of the marvelous work which is being done for the tuberculous poor in these three great sanatoria. At Mont Alto alone the average yearly number of patients treated has been 1750. This figure is obtained by including the patients of the years when this sanatorium was still in the stage of development and its capacity small. During the last three years the average number of patients treated has been something over three thousand. The average stay at this sanatorium has been nearly five months.

In prominent positions on the walls of the booth hung colored charts showing a comparison of death rates from the various forms of tuberculosis from 1906 to 1914, and indicating a reduction in mortality of from twenty to twenty-two per cent. during that period of nine years.

A most interesting portion of the tuberculosis exhibit of the Department proved to be the completely equipped State Tuberculosis Dispensary, containing the furniture and appliances used in treating patients, sanitary paper drinking cups, napkins, and pocket and other forms of sputum cups. There were 19,354 patients treated in 1914 in the one hundred and fifteen State Dispensaries, and up to July 1, 1915, over eighty-two thousand persons had been enrolled for this treatment.

By means of many photographs and transparencies the visitor saw the enrollment of the patient at the dispensary; the physical examination by the physician; the activity of the nose and throat clinic; and the work of the Dispensary nursing service, showing the restoration of a consumptive's filthy, ill ventilated, and poorly heated bed room in a little shanty in a back alley, by opening the windows, cleaning the floors and walls with soap and water, whitewashing the walls and ceiling, painting the washstand, dresser, etc., with white paint, buying a small heating stove for little money, all for the small outlay of not more than a five dollar bill.

In this connection it might be said that Dispensary nurses keep lists of houses which are desirable to live in and frequently have the families of the poor, sick or otherwise, moved from insanitary to sanitary quarters at the same rent or less.

When coal is needed by the destitute a kind-hearted Dispensary nurse rustles round and has a ton sent to this family by some charitable organization, if there be any, or if not, by some of the philanthropic rich of the community.

One picture showed a sick mother and four children with the nurse washing the baby; another, a Dispensary nurse giving instruction in the preparation of food; and among them all were shown the various kinds of social service work carried on by these Dispensary nurses. In 1914, the nurses paid 153,498 visits to the homes of tuberculous and indigent persons.

Photographs and transparencies of bad housing in the city and in the country showing the numbers of large families crowded into small, dark sleeping and living rooms, with little or no ventilation, some tuberculous and some still well, breathing each other's breath over and over again, made clear the insanitary way in which thousands of persons live. In direct contrast to these despicable conditions in housing were photographs of well-kept homes with the one or two-room built-on sleeping-porch, and the family fighting the tuberculosis infection by this method of living.

Several photographs presented the grave possibilities encountered by those using a public telephone booth after its use by a tuberculous individual; and the danger to her children of even a mother's tender care—if the mother be tuberculous—bestowed thoughtlessly upon those she loves.

Typhoid Fever and Sanitary Engineering.

The space allotted to the work of the Department in the prevention of typhoid fever was considerable. Large topographical models of the parts of the State in which widespread epidemics of typhoid fever have occurred, portrayed how at Nanticoke one unreported case of typhoid upon the bank of a stream eight miles above the intake of the public water supply of the town caused five hundred and twelve cases with a mortality of fifty; how in the Scranton epidemic feces discharged from trains crossing open bridges over the collecting basin of the city water supply caused eleven hundred and seventy-one cases of enteric fever with a hundred and twenty-three deaths; how an emergency water supply infected by a leaky flume, above the basin, carrying sewage from a hospital caused three-hundred and seventeen cases of typhoid fever in Coatesville with thirty-four deaths; how the infection from a cesspool seeping through fissures in a limestone stratum was the cause of twenty-five cases of typhoid in Florin; and how in the Skippack epidemic one hundred and nine cases occurred extending over five miles through a semi-rural community as a result of one case of typhoid fever in the family of a dairyman supplying this extensive territory with milk.

Models of a filtration plant and of a sewage disposal plant were also exhibited. A most interesting operating model of the sewage disposal plant at Hamburg was seen. There, appeared the screen chamber, the Imhoff tanks, the sprinkling filters, the apparatus for adding the chemical disinfectant, the settling basin, and a filter of the rapid sand type; all these in full working order.

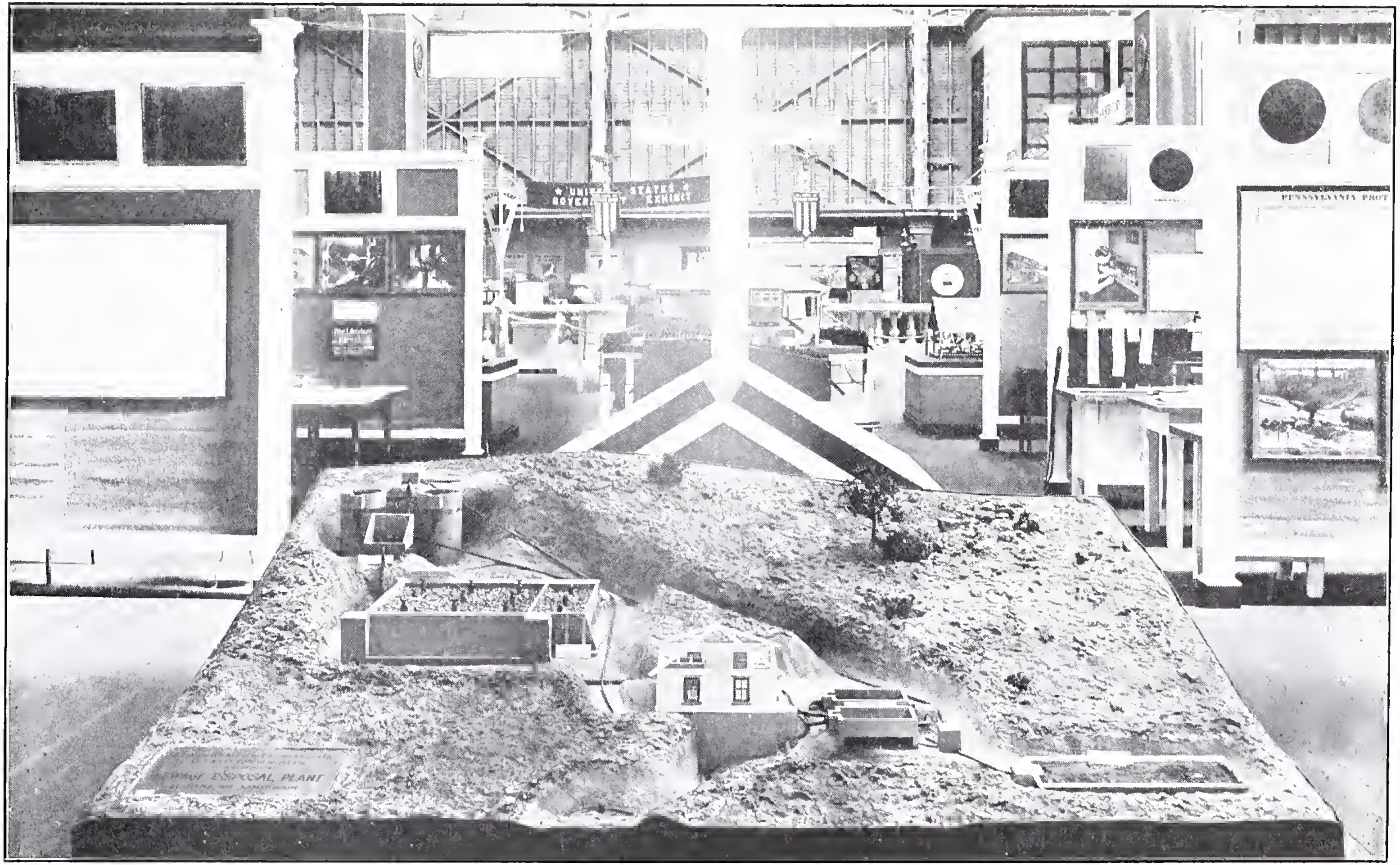
Various photographs and transparencies disclosed how streams from which a public water supply is drawn are polluted by dead animals, barn yard drainage, pig pens situated along the banks, privies overhanging the stream, etc. Models of a screened manure pit and a screened sanitary privy preventing the access of flies to the fecal material illustrated how fly-borne epidemics of typhoid fever may be prevented.

By colored charts attention was directed to the very striking decline in the prevalence and fatality of typhoid fever in Pennsylvania since the creation of the Department of Health. The morbidity from this disease, as expressed by the rate in a hundred thousand of the population, from 1906 to 1914, is estimated to have fallen off more than seventy-three per cent. The saving in cases of illness from this disease from 1906 to the middle of 1915 may be reckoned as over one hundred and twenty thousand. The deaths attributed to typhoid fever have also shown a great drop, such that the reduction in the rate amounts to over seventy-six per cent., and the aggregate saving of life to the middle of 1915 is more than twenty thousand.

In this description of the exhibit of the Department at the Panama-Pacific Exposition an attempt has been made to bring to the perception of the reader only the main points of interest in this magnificient demonstration of the administration of public health affairs in the sixth most densely populated state in the Union, second in population, second in wealth, but first in Sanitary Science.

It took hours for the visitor to inspect the exhibit even in a cursory fashion and it would take a large volume to describe in any just detail the great number of models, photographs, transparencies, and reproductions, so beautifully arranged as to convey the truths they represented in the most impressive manner.

The excellence of the display can be no better expressed than to say that the Commissioners of the Exposition awarded to the Exhibit of the Pennsylvania Department of Health, the Grand Prize, the highest honor within their gift; and bestowed upon the Commissioner of Health, Dr. Samuel G. Dixon, the Gold Medal, representing the most distinguished honor which could be conferred by the Exposition Managers upon an individual.



Operating Model of the Hamburg Sewage Disposal Plant, as shown at San Francisco.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev. Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.

Note:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers: 7, 9, 10, 33, 39, 49 are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 78. HARRISBURG, PA. FEBRUARY, 1916.

THE SANITARY INDEX.

A METHOD OF MEASURING PUBLIC HEALTH WORK.

WILMER R. BATT, M. D., *State Registrar*, Pennsylvania Department of Health.

The equities involved in the exchange of commodities through barter and trade no less than through the development of the arts and sciences have all combined to create fixed standards of measurements of both forms and values. For example, the pound and the yard with their subdivisions or multiples are accepted expressions which convey a definite sense of quantity. So too the word rate or ratio has been recognized as indicating a sense of proportion between units of value and units of quantity. Cents a pound or miles an hour are statements of relation indicating rates of cost or rates of speed.

Such is our present desire for basic truths that we endeavor in countless ways so to classify and analyze human effort that new measures of efficiency may be established and applied. In mortality accounting the ordinary standard of measurement is found in the general population, and the death rate is simply a statement as to the number of persons dying in any fixed period of time, usually one year, in each unit of one thousand persons. The reduction of the death rate has been made the objective of highly specialized effort by public agencies, but the true effectiveness of this effort as manifested within definite areas has not heretofore been consistently estimated, principally through failure to develop and apply a practical standard of measurement. The general or crude death rate, including deaths from all types of disease, from old age as well as from all forms of .violence, accidental or otherwise, certainly does not form such a standard, although it is the most frequently employed method of expression in popular discussions of the value of public health work. It represents the simplest form of mortality accounting and, without an appreciation of its insignificance, it has been most thoroughly misapplied.

To a certain extent the endeavor has been made to remedy this deficiency in presenting statistics relative to sanitary progress by tracing the individual course of some of the most prominent transmissible diseases, such as typhoid fever, tuberculosis, and diphtheria, but the results have been very far from presenting a composite picture which would fairly indicate the sum total of accomplishment in preventive work of a public character to which sanitarians as well as the people themselves are entitled.

The adopted field of public health activities embraces a group of affections which, from a knowledge of their causes and methods of transmission, have been classed as preventable. More definitely stated, this group includes the acute communicable diseases of the epidemic type and tuberculosis (being the titles numbered 1 to 15 in the Abridged International Classification of the Causes of Death with the exception of No. 9, influenza) and, in addition to these, the deaths of infants under one year of age not included in the above. Beyond this group there exists a rather extensive variety of diseases, the occurrence of many of which may be influenced by general educational effort to promote personal hygiene. The group first indicated, however, absorbs the maximum of effort and resources, and the sum total of deaths from these causes may be regarded as a fair index of the efficiency in conserving life and health through public agencies.

In the following statistical review of mortality in Pennsylvania, covering the period 1906 to 1915, inclusive, deaths from the limited group of causes mentioned have been brought together and their ratio to each thousand of population has been styled the "Sanitary Index Rate;" and the deaths from all other causes exclusive of those above included, treated in the same manner, have supplied the "Residual Death Rate." The sum total of these two rates will consequently correspond to the general or crude death rate.

Pennsylvania presents the rather unique picture of one agency (the State Department of Health) responsible for the direct administration of the public health affairs for 2,644,611 of its population distributed through the length and breadth of its domain in 1,556 townships, and 939 individual agencies (Local Boards and Departments of Health) charged with the same duties for 5,739,871 of its population distributed in an equal number of restricted areas known as boroughs or cities. The former constitutes what is known strictly as the "Rural" and the latter the "Urban" population of our State.

The fundamental laws of the State provide, so far as laws can possibly do, for the management and control of those communicable diseases which are the direct object of public concern, and apply equally to all portions of the State irrespective of the agency through which they may be administered. The State Department of Health has at its command no greater legal resources than the smallest borough, and the efficiency of administrative effort can in no way depend upon legislative discrimination between the several political units. While it is true that the State Department of Health has also supervisory control in health affairs over all the municipalities of the State and that this control may become active upon the failure of any individual locality to perform its duties in public health affairs; theoretically, each of the 939 cities and boroughs should fulfill certain specific obligations within its borders, while at the same time all are equal beneficiaries of the State's activities in the protection of their water, milk and food supplies, the distribution of antitoxins and vaccines, the maintenance of laboratories, the treatment of tuberculosis, and the manifold benefits arising from a constant and wide exercise of a sanitary guardianship.

A clear understanding of these facts is essential to an appreciation of the evidence which will be developed in this survey concerning the effectiveness of public health administration in the several units of our poulation. As the resources available for the administration of all public health affairs are dependent in a very considerable degree upon the unit of population involved, municipalities of relatively the same size should be fairly comparable. The following groups of population have therefore been created:

Group 1. Composed of 4 municipalities each having more than 100,000 population.

Group 2. Composed of 8 municipalities each having between 50,000 and 100,000 population.

Group 3. Composed of 9 municipalities each having between 25,000 and 50,000 population.

Group 4. Composed of 41 municipalities each having between 10,000 and 25,000 population.

Group 5. Composed of 877 municipalities each having less than 10,000 population.

Group 6. Composed of 1,556 townships—rural population.

Out of a total State population in 1915 estimated at 8,384,482 we find that the several groups have the following populations and percentages of the total:

Group 1,	2,504,916—29.9%
Group 2,	506,579— 6.0%
Group 3,	291,821— 3.5%
Group 4,	701,128— 8.4%
Group 5,	1,735,427—20.7%
Group 6,	2,644,611—31.5%

We have therefore in Group 6 one agency, the State Department of Health, in direct responsibility for 31.5% of our population—4 municipalities (Group 1) being responsible for 29.9%, 58 municipalities (Group 2, 3, and 4) for 17.9%, and 877 municipalities (Group 5) for 20.7%.

In considering the distribution of population it should also be borne in mind that while the average population of the municipalities included in Group 5 is approximately 2,000, there are in Group 6 very many villages of equal and even greater population, the question of incorporation as a municipality depending upon the wishes of the community and not necessarily upon the number of inhabitants. Groups 2, 3, and 4 might be consolidated, if it were not that there is something of an individuality in the rates for these groups which makes their segregation advisable.

The proportionate number of deaths involved in the construction of the Sanitary Index in 1906 was 40.5% of the total of 114,406 from all causes. In 1915 it was 32.5% of a smilar total of 115,284. One death in every three occurring in the State has therefore been employed in its construction.

Perhaps the value of applying a "yard stick", such as the Sanitary Index, to a gross population containing so many administrative agencies as exist in our State is not so great as when measuring the efficiency in individual localities with single agencies in control; but as every composite picture awakens curiosity as to the individual elements entering into it, the rates for the State as a whole and for the several groups may well precede a more detailed examination of individual localities.

In Chart I the sanitary index rates are presented graphically for the ten-year period 1906 to 1915, inclusive, for the State as a whole and for each of the several groups of population. The general death rate during this period declined from 16.0 per 1,000 population to 13.8, a reduction of 13.8%. During the same period the sanitary index declined from 6.5 to 4.5, a reduction of 30.8%, while the residual death rate declined from 9.5 to 9.3, a reduction of but 2.1%. The application of the percentage of reduction which occurred in the sanitary index to the residual deaths would have given us a general death rate of 11.1 in place of 13.8.

It is therefore apparent that almost the entire reduction that has taken place in the general death rate has been due to the decline in the deaths from those diseases that are the objects of sanitary attack, and when we employ only the general death rate as an expression of progress in public health work, we fail utterly properly to measure the returns accruing from sustained and intelligent expenditures of both knowledge and money in this direction.

By the segregation of the causes of death into two groups we are also bringing into due prominence through the residual death rate the necessity for safeguarding industrial workers and for personal hygiene on the part of individuals, an object of great concern in improving racial vitality, but unfortunately at the present time one of uncertain acceptance. Old age should be the preeminent cause to be attained in this group.

The tremendous impetus given in Pennsylvania to municipal public health work in 1905 by the creation of a centralized authority in the State Department of Health, with ample powers and appropriations, but which were not effective for a full calendar year until 1906, is almost immediately reflected in the closer approximation of the sanitary index rates of Groups 1 to 5. The influence of supervisory control by the State and a more appreciative sense of responsibility to the same authority on the part of municipal health organizations is very apparent.

The curves on Chart I for the Groups 1 to 5, inclusive, show that for the year 1906 there was a divergence of 2.8 between the rates for the highest and lowest groups. In 1915 the divergence was only 0.6, indicating that there has been an evident coordination of public health effort in all groups, with a progressive downward trend distinctly more marked in some than in others.

In 1910 the rates for each of the groups (1 to 5) increased over the previous year, but not all groups increased equally—Group 1 increased 0.4, Groups 2, 3 and 4 increased 0.3 and Group 5 increased 0.2.

The next interruption to the downward tendency in the several groups occurred in 1913, in which year Group 4 remained stationary, Group 2 increased 0.1, Groups 1 and 3 increased 0.3 and Group 5 broke away from its fairly close association with other groups and increased 0.7.

This chart emphasizes the position of the rural population (Group 6), which, starting level with Group 2 in 1906, at once pursues a progressive downward course unaffected by the rise in the other groups for the year 1910, and but 0.1 by the increase in 1913.

In Chart II a comparison is made between Group 5 and Group 6, for the reason that sanitary administration in Group 5 through independent agencies develops a course quite at variance with a single agency in control of 1,556 units of population.

The conditions of life in the vast majority of the municipalities included in Group 5 differ in no way from the conditions which prevail in the villages included in Group 6. The problems of sanitation are in no way more difficult, and as compared with Groups 1 to 4 should be much easier of solution.

Charts III to VIII, inclusive, illustrate the sanitary index and residual rates of the several groups of population in comparison with the combined rates for all municipalities.

The downward tendency with extremely slight fluctuations in the rural sanitary index and with a satisfactory proportion in relation to the residual death rate closely approximates the ideal in sanitary progress.

Group 2 presents the smallest percentage of improvement, due largely to the favorable position which it occupied in 1906 in relation to other municipal groups. The standing of the groups in this respect, both as to sanitary index and residual rates, is interesting.

	Sanitary Index Percentage decrease 1906-1915	Residual Rates Percentage increase or decrease 1906-1915
Group 1,	—42.5%	— 3.6%
Group 2,	—15.4%	+ 9.7%
Group 3,	—20.6%	+ 9.9%
Group 4,	—37.5%	— 9.6%
Group 5,	—25.0%	+22.7%
Group 6,	—28.9%	—12.9%
The State as a whole,	—30.9%	— 2.1%

The course of Group 5, the only one presenting three peaks in the period under consideration, arouses the greatest concern because of the very large number of individual agencies and the small primary units of population involved. While the reduction of 25.0% in the sanitary index compares favorably with the decline in other groups, an important element to be considered exists in the fact that during the years 1914 and 1915 the State Department of Health was obliged to exercise its conditional authority by assuming and maintaining control of sanitary affairs in 140 municipalities within this group. The decline for the period terminating in 1914 was only 18.8%. When we further consider that 677 out of a total of 877 municipalities in this group have populations less than 2,500, the question of securing in such small units the adequate resources of ability, appropriations or community sentiment for the performance of active sanitary work is in the majority of instances extremely doubtful. On the other hand, the existence of such a large number of possibly unguarded foci of infection constitutes a menace to the entire State which may well be viewed with serious apprehension.

When we leave the study of groups and consider the records of the individual municipalities having more than 10,000 population,

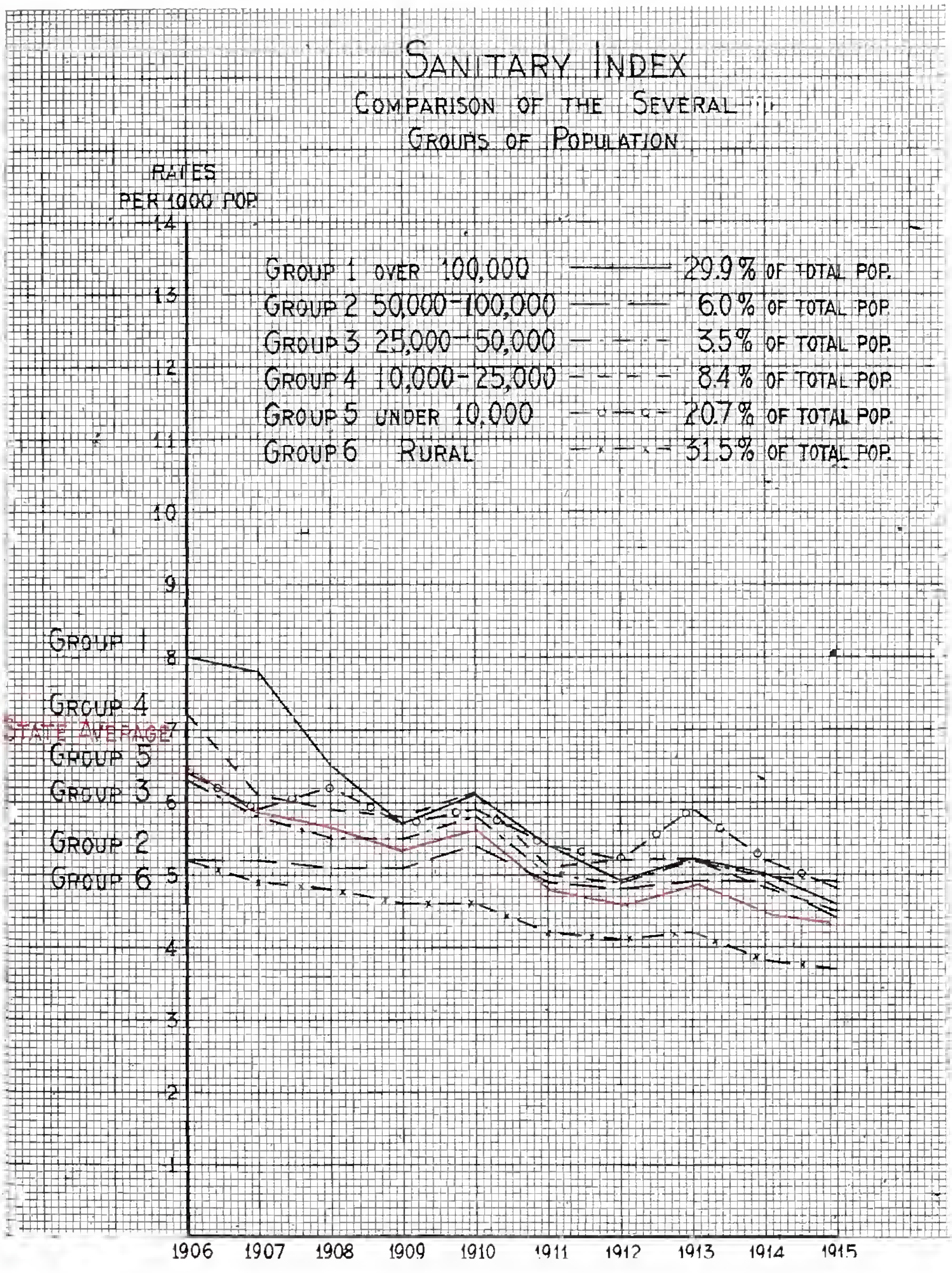


CHART I.—The Sanitary Index of the State, as a unit (in red), and of the several groups of population, with the percentage in each group relative to the population of the State for the period, 1906-1915, inclusive.

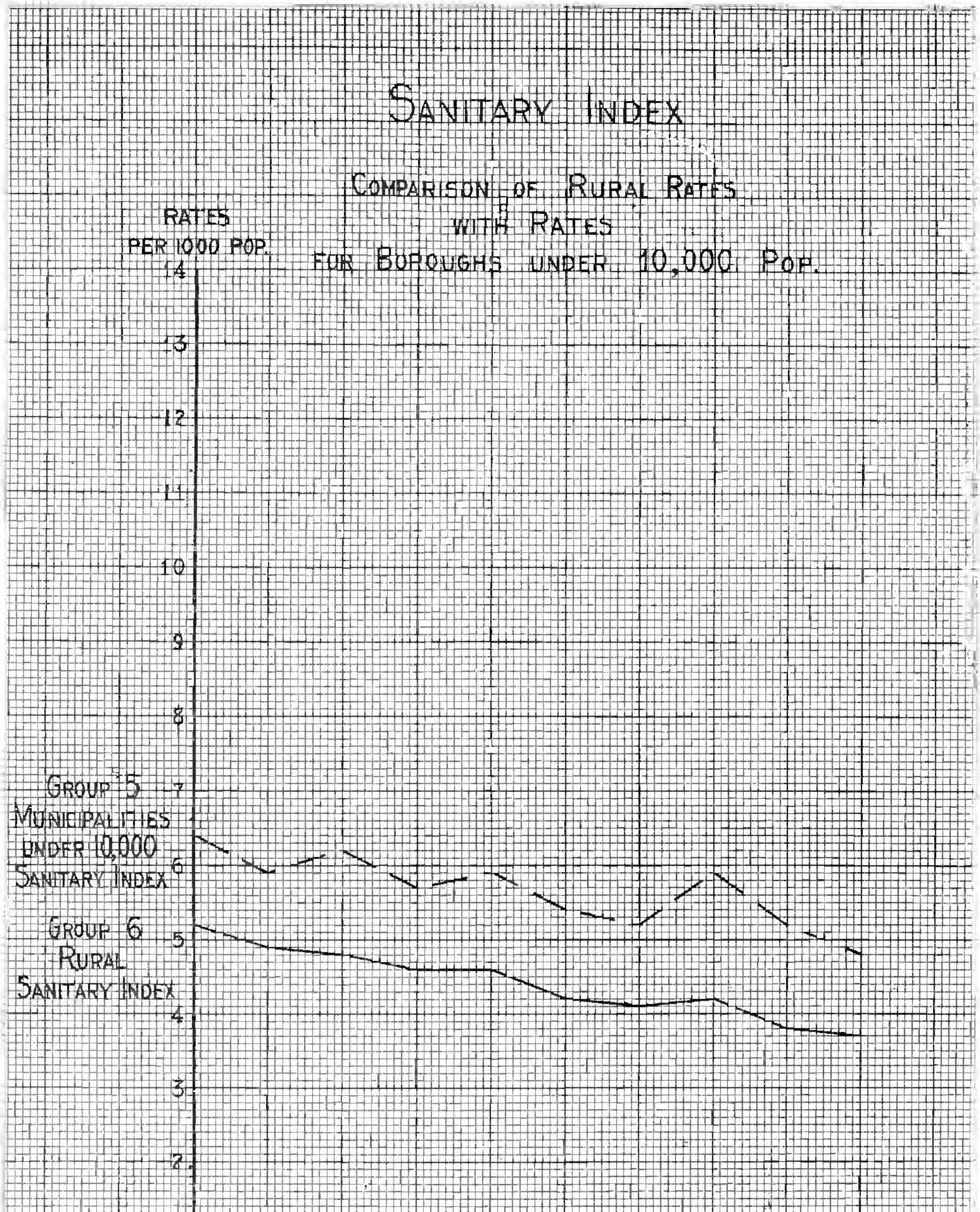


CHART II.—The Sanitary Index of Group 5, composed of 877 boroughs, each of less than 10,000 population, and forming an aggregate of 20.7% of the population of the State, compared with the Sanitary Index of Group 6, comprising the rural sections of the State in 1556 townships, with an aggregate of 31.5% of the population of the State.

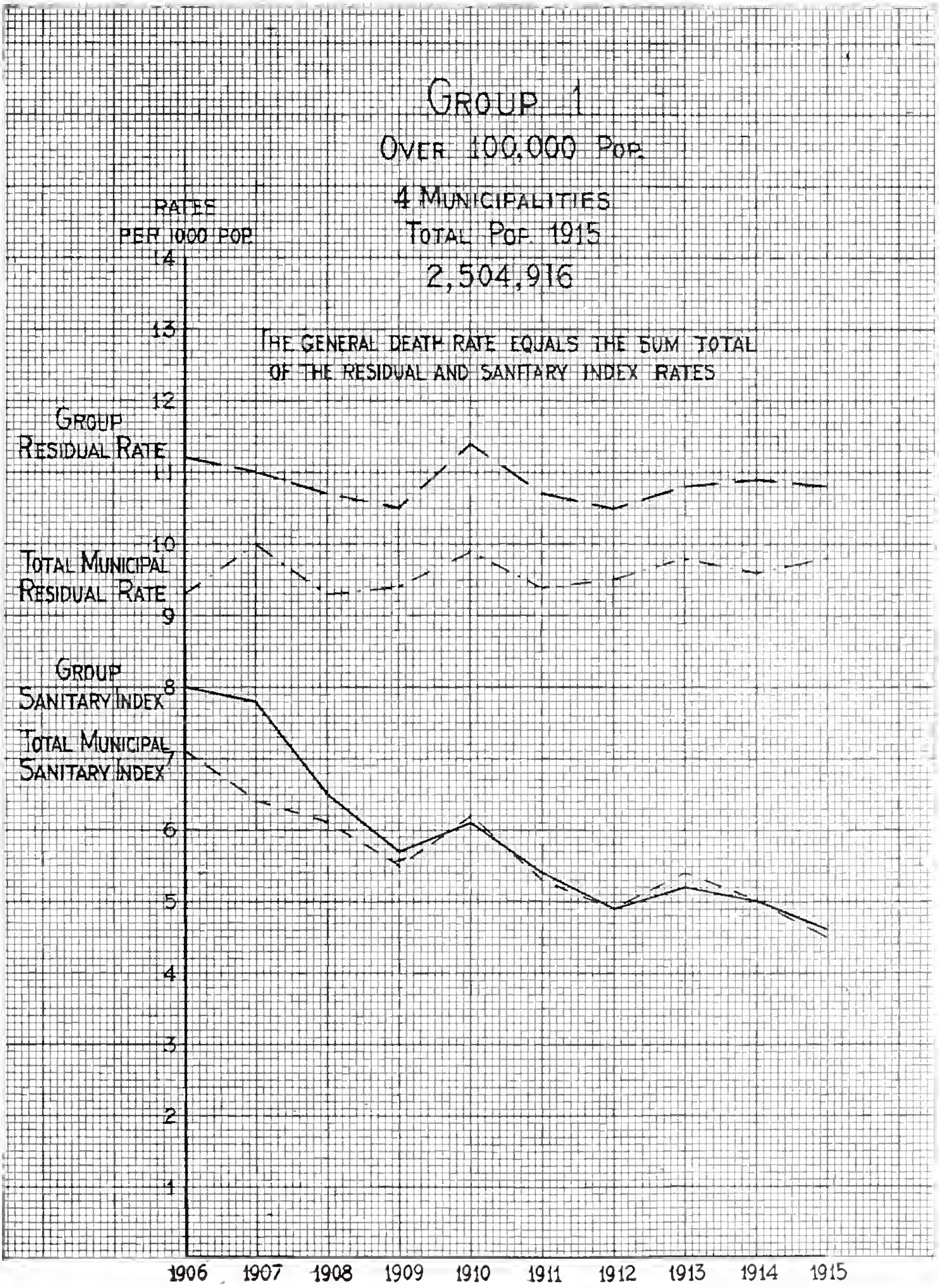


CHART III. The Sanitary Index and Residual Death Rate of Group 1, comprising 29.9% of the population of the State, compared with the Sanitary Index and Residual Death Rate for all Municipalities.

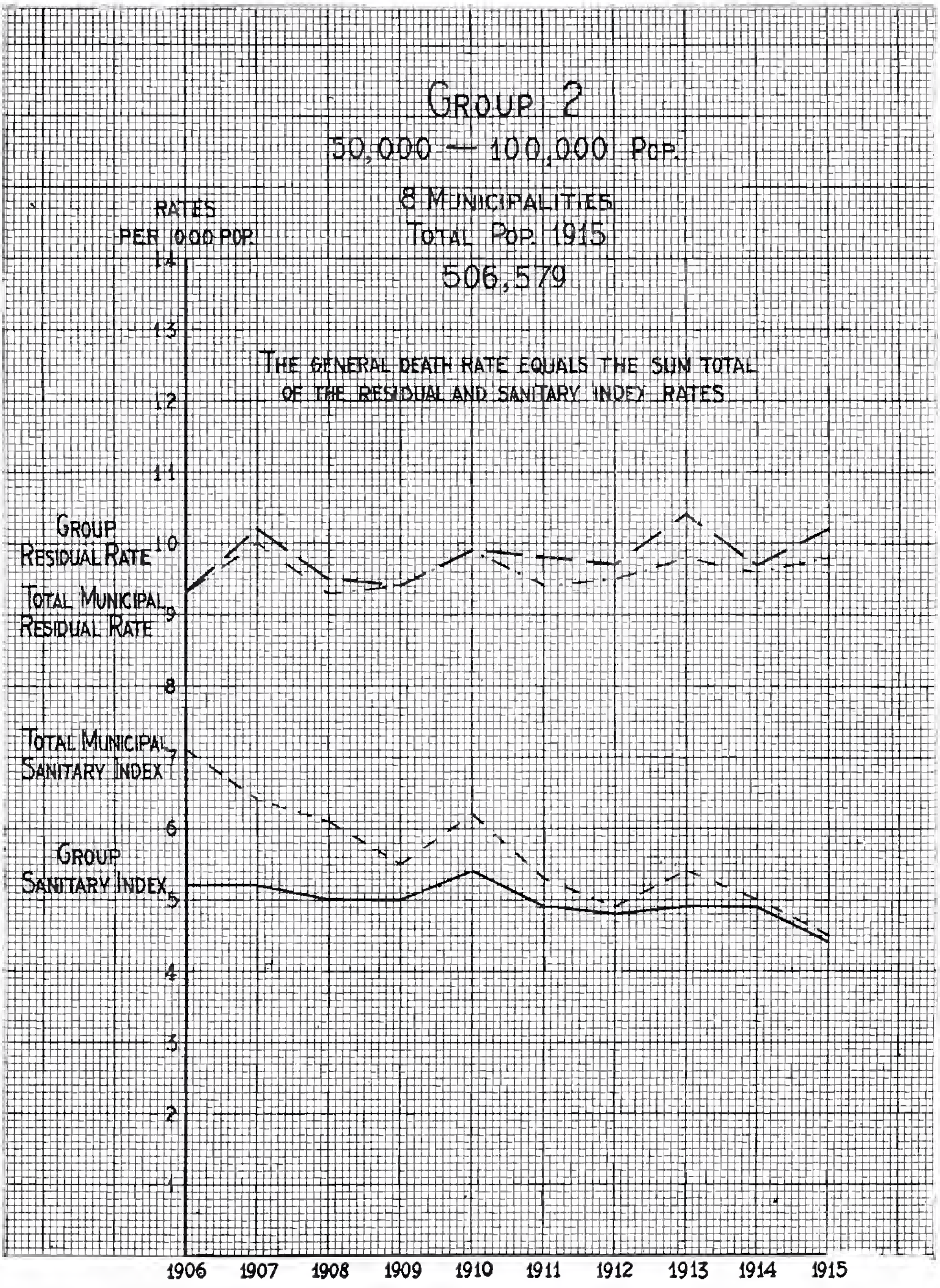


CHART IV. The Sanitary Index and Residual Death Rate of Group 2, comprising 6.0% of the population of the State, compared with the Sanitary Index and Residual Death Rate for all Municipalities

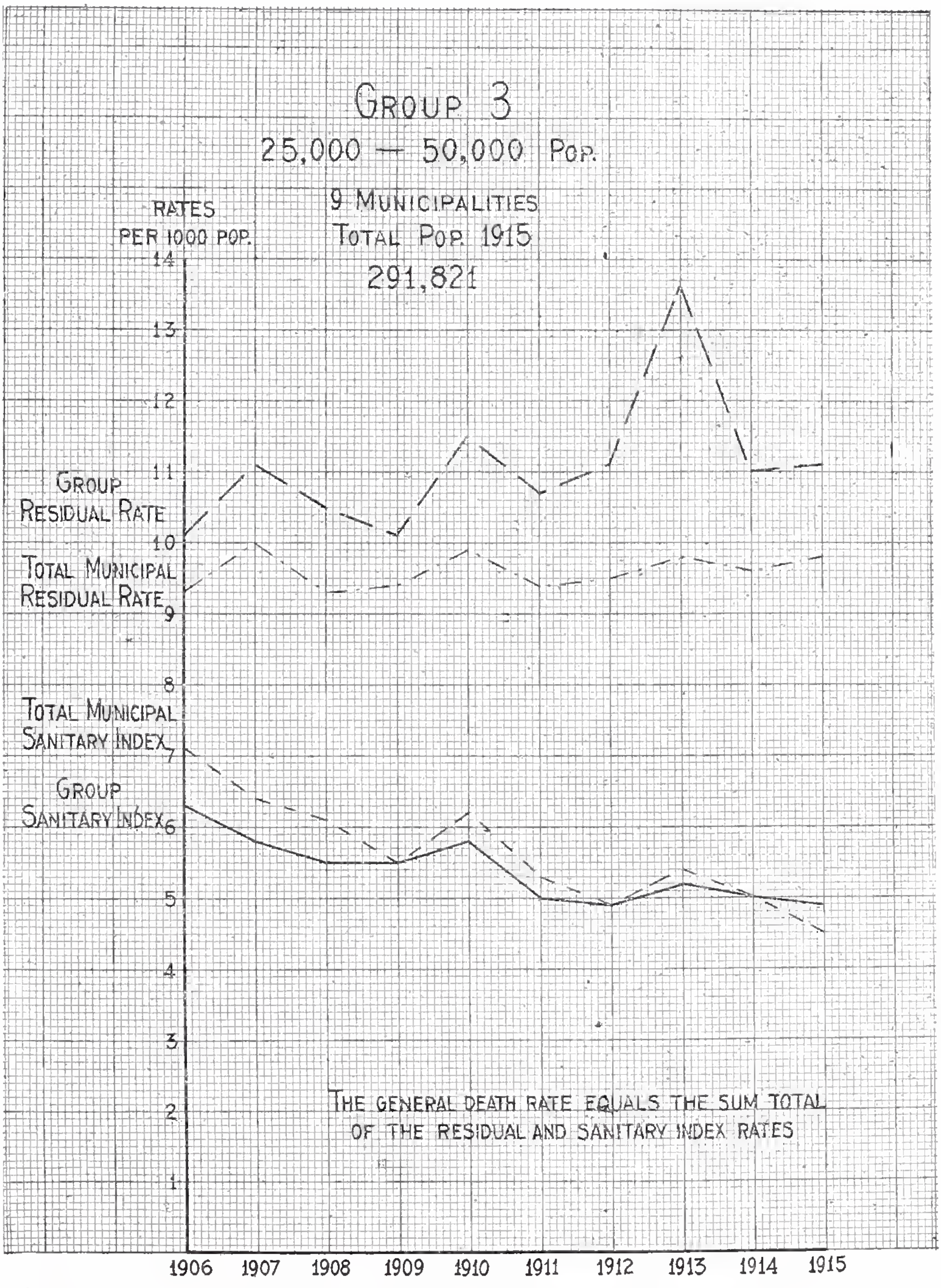


CHART V. The Sanitary Index and Residual Death Rate of Group 3, comprising 3.5% of the population of the State, compared with the Sanitary Index and Residual Death Rate for all Municipalities

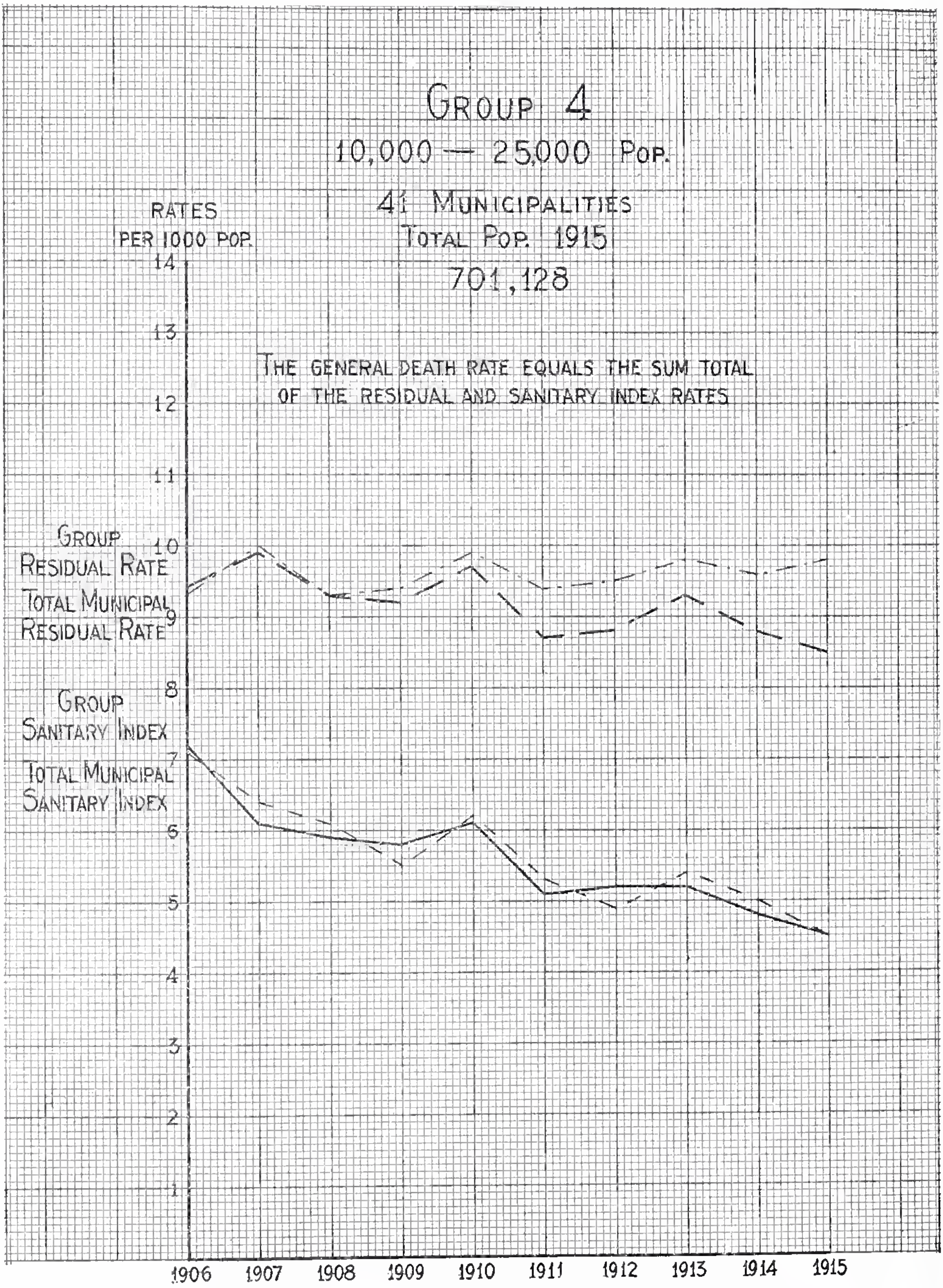


CHART VI. The Sanitary Index and Residual Death Rate of Group 4, comprising 8.4% of the population of the State, compared with the Sanitary Index and Residual Death Rate for all municipalities.

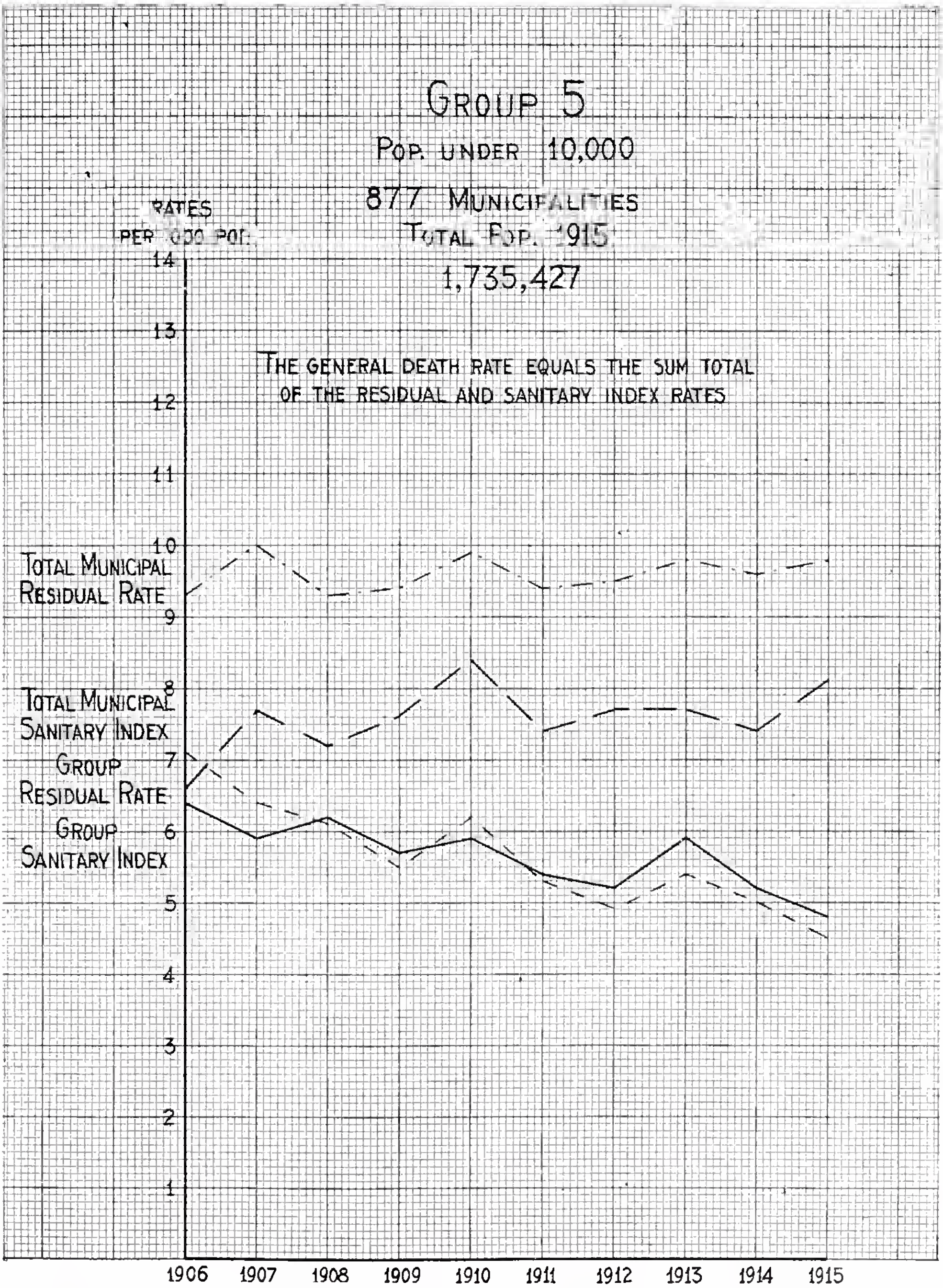


CHART VII. The Sanitary Index and Residual Death Rate of Group 5, comprising 20.7% of the population of the State, compared with the Sanitary Index and Residual Death Rate for all municipalities.

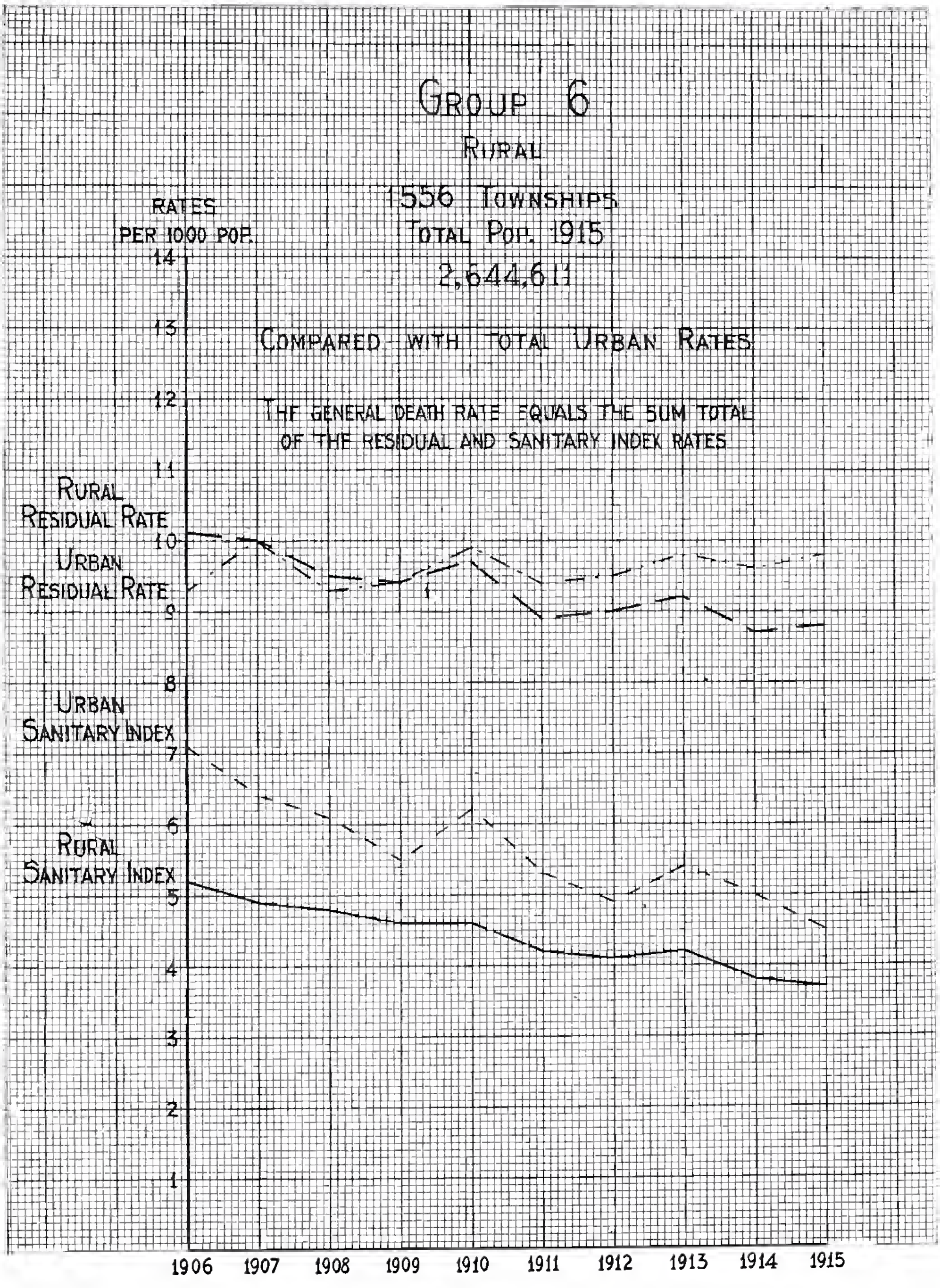


CHART VIII. The Sanitary Index and Residual Death Rate of Group 6, comprising 31.5% of the population of the State, compared with the Sanitary Index and Residual Death Rate for all Municipalities.

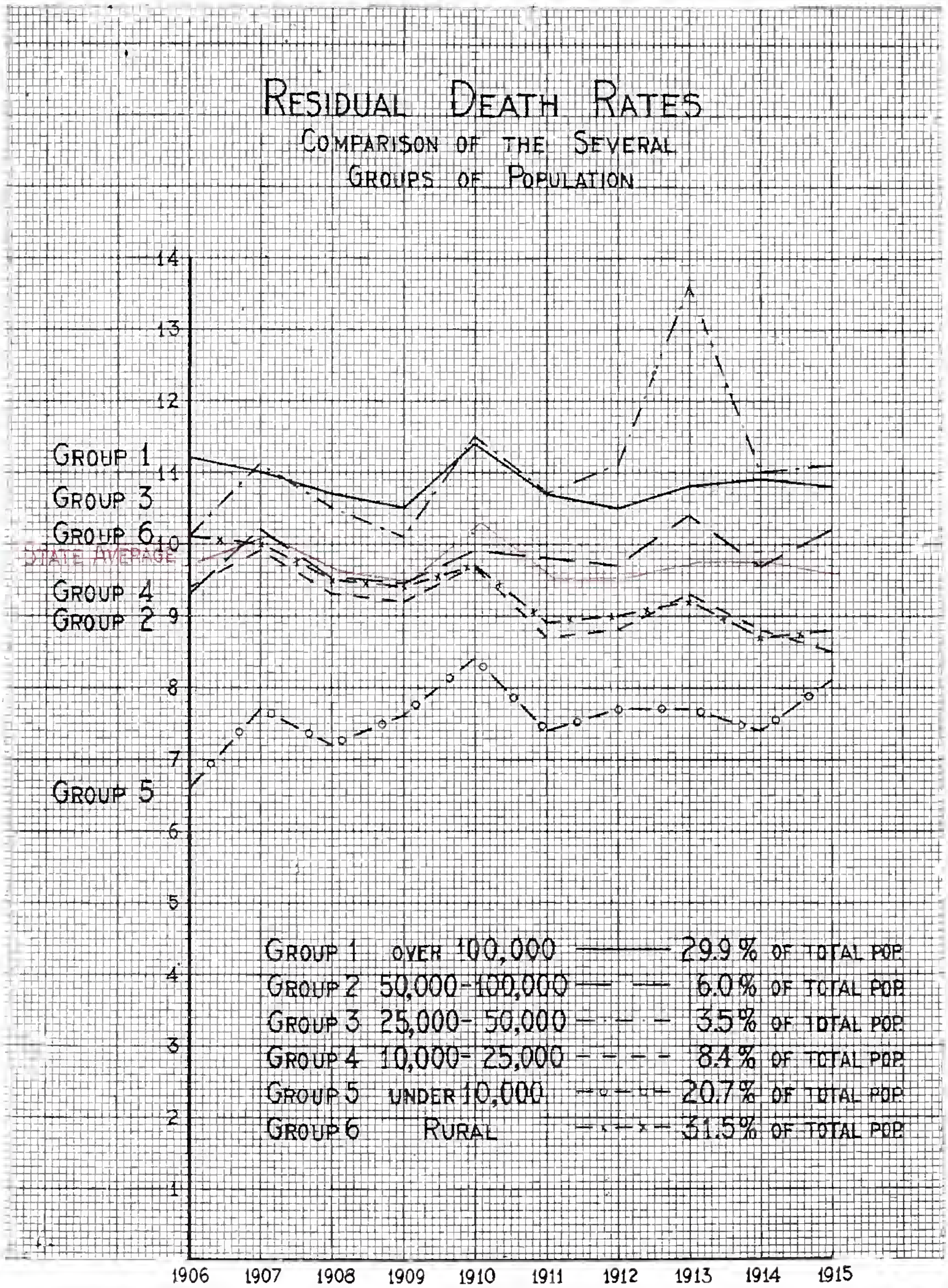


CHART IX. The Residual Death Rate of the State, as a unit (in red), and of the several groups of population, with the percentage in each group relative to the population of the State for the period, 1906-1915, inclusive.

we are instantly impressed with the wide variations in the sanitary index which are not so apparent in group curves. In the appended tabulation the sanitary index and residual rates are shown for each such municipality and also for the group to which each municipality belongs so as to indicate the position occupied in relation to similarly populated areas.

In interpreting the sanitary index for any individual locality three points may be considered: the relation of the sanitary index rate to the same group rate; the relation of the sanitary index rate to the residual death rate; and the existence of peaks in the sanitary index, as these beyond doubt illustrate the occurrence of epidemics.

A high sanitary index as compared with the corresponding group rate is evidence of non-existent or ineffective sanitary effort. While this condition is to be found most frequently in localities having a high proportion of foreign or colored population, there are some notable exceptions which demonstrate that the two conditions are not inseparable. It is true that the habits and circumstances of life among the foreign born do not always favor sanitary administration but it is equally true that wherever such handicaps do exist they should be counterbalanced by greater effort and more abundant resources. A strikingly erratic sanitary index rate, although its general course as indicated by its extreme points may be downwards, is indicative that epidemics have found an open door and fertile breeding ground.

In Chart IX a comparison is made of the residual death rates for the several groups of population and the State as a whole.

There will always be some individuality to the residual rates of any locality just as there will always be some individuality to a local population as regards age or sex distribution, and composition as to color, nativity, and occupations, all of which are factors of more or less influence in the determination of such rates.

The deaths of non-residents occurring in hospitals also have a distinct influence on the residual rates of certain Groups. This is emphasized by the erratic course of the curve for Group 3 composed of a small number of municipalities whose hospital facilities are extensively utilized by adjacent populations.

The greatest increase in the residual rate occurs in Group 5 in which hospital deaths, however, play no part as the units of population are too small to maintain such institutions. An unfavorable age distribution through the retirement of aged people from the farms to the smaller municipalities is the most important factor in the maintenance of a relatively high rate for this group.

A consistent and continued decline in the residual death rate for the entire State will be the reflection of a deeper individual appreciation of more rational living, working, playing, and finally dying.

TABULATION OF MUNICIPALITIES HAVING A POPULATION OF 10,000 OR MORE, SHOWING THE SANITARY INDEX AND THE VARIOUS RATES OF EACH PLACE AND OF THE GROUP TO WHICH IT BELONGS.*

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
ALLENTOWN.										
General Death Rate,	15.4	16.6	15.9	14.8	16.8	15.4	14.7	16.1	15.0	16.0
Sanitary Index,	6.4	6.6	6.6	6.0	6.2	5.8	5.7	5.9	5.0	5.3
Group Sanitary Index,	6.3	5.8	5.5	5.1	5.4	4.9	4.8	4.9	4.9	4.4
Residual Rate,	9.0	10.0	9.3	8.8	10.6	9.6	9.0	10.2	10.0	10.7
Group Residual Rate,	10.1	11.1	10.5	9.4	9.9	9.8	9.7	10.4	9.7	10.2
ALTOONA.										
General Death Rate,	14.7	13.9	13.3	11.8	12.6	11.7	13.9	13.5	14.3	12.3
Sanitary Index,	5.9	4.9	5.4	4.1	4.6	3.5	4.2	4.9	5.2	3.2
Group Sanitary Index,	6.3	5.8	5.1	5.1	5.4	4.9	4.8	4.9	4.9	4.4
Residual Rate,	8.8	9.0	7.9	7.7	8.0	8.2	9.7	8.6	9.1	9.1
Group Residual Rate,	10.1	11.1	9.5	9.4	9.9	9.8	9.7	10.4	9.7	10.2
BEAVER FALLS.										
General Death Rate,	13.3	13.2	13.3	11.5	13.7	13.3	14.9	14.6	14.3	13.4
Sanitary Index,	4.8	6.3	5.0	4.3	5.4	5.5	5.5	5.3	4.4	4.6
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.5	6.9	8.3	7.2	8.3	7.8	9.4	9.3	9.9	8.8
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

BETHLEHEM.										
General Death Rate,	....	....	....	....	13.2	13.8	10.6	12 6	12.0	11.2
Sanitary Index,	....	....	....	....	3.8	4.1	3.5	3.0	3.9	3.1
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	9.4	9.7	7.1	9.6	8.1	8.1
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
BRADDOCK.										
General Death Rate,	24.7	25.6	21.9	21.6	21.0	17.8	18.7	23.2	17.5	18.1
Sanitary Index,	13.4	11.8	9.7	10.8	9.5	8.5	6.9	8.6	6.5	8.0
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	11.3	13.8	12.2	10.8	11.5	9.3	11.8	14.6	11.0	10.1
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
BRADFORD.										
General Death Rate,	14.0	12.5	12.7	14.2	13.1	14.6	14.6	13.7	15.1	14.6
Sanitary Index,	3.7	2.3	2.7	3.3	2.5	2.5	3.2	2.6	3.2	2.7
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	10.3	10.2	10.0	10.9	10.6	12.1	11.4	11.1	11.9	11.9
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
BUTLER.										
General Death Rate,	15.9	15.9	13.1	12.9	15.4	10.9	10.4	10.7	11.5	9.6
Sanitary Index,	5.8	5.4	5.1	5.3	6.6	4.2	4.2	3.6	3.6	3.1
Group Sanitary Index.	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.9
Residual Rate,	10.1	10.5	8.0	7.6	8.8	6.7	6.2	7.1	7.9	6.5
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	11.1

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
CARBONDALE.										
General Death Rate.	18.9	16.6	15.9	16.0	19.1	16.8	15.1	16.3	15.8	14.9
Sanitary Index,	7.5	5.1	5.1	5.4	4.6	3.5	3.9	3.9	3.9	3.8
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	11.4	11.5	10.8	10.6	14.5	13.3	11.2	12.4	11.9	11.1
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
CARLISLE.										
General Death Rate,	13.8	17.0	15.7	15.7	16.1	16.5	15.5	14.9	14.4	14.2
Sanitary Index,	4.0	5.5	3.1	3.8	3.8	3.7	3.7	4.9	3.1	2.4
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	9.8	11.5	12.6	11.9	12.3	12.8	11.8	10.0	11.3	11.8
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
CARNEGIE.										
General Death Rate,	....	....	....	....	13.4	8.9	14.1	12.9	10.3	12.1
Sanitary Index,	....	....	....	....	6.5	5.2	7.1	5.7	4.4	6.2
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	6.9	3.7	7.0	7.2	5.9	5.9
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5

CHAMBERSBURG.										
General Death Rate,	17.9	14.9	16.3	16.9	16.3	16.4	17.2	14.7	17.5	14.2
Sanitary Index,	6.3	5.0	4.7	4.0	4.5	3.9	4.6	4.0	4.1	5.8
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	11.6	9.9	11.6	12.9	11.8	12.5	12.6	10.7	13.4	8.4
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
CHESTER.										
General Death Rate,	16.1	15.8	16.0	15.8	16.8	15.4	16.7	18.4	17.1	16.1
Sanitary Index,	7.0	5.5	6.4	6.2	6.2	5.6	6.2	7.2	6.2	5.4
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	9.1	10.3	9.6	9.6	10.6	9.8	10.5	11.2	10.9	10.7
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	11.1
COATESVILLE.										
General Death Rate,	....	....	....	....	13.3	10.8	14.4	11.1	9.8	9.4
Sanitary Index,	....	....	....	....	6.0	4.6	6.5	5.5	4.5	4.7
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	7.3	6.2	7.9	5.6	5.3	4.7
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
COLUMBIA.										
General Death Rate,	13.2	13.7	13.2	13.0	15.8	12.7	11.9	12.4	14.5	14.3
Sanitary Index,	6.4	4.4	3.8	3.7	5.9	4.1	3.4	3.7	5.6	3.5
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	6.8	9.3	9.4	9.3	9.9	8.6	8.5	8.7	8.9	10.8
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
CONNELLSVILLE.										
General Death Rate,	....	....	....	....	15.8	14.2	12.0	12.7	12.7	11.9
Sanitary Index,	....	....	....	....	5.3	4.1	3.7	3.7	3.6	3.9
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	10.5	10.1	8.3	9.0	9.1	8.0
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
BU BOIS.										
General Death Rate,	13.6	13.0	11.1	8.8	11.4	10.2	10.0	12.9	10.4	8.9
Sanitary Index,	6.3	5.5	4.0	3.9	3.7	3.4	4.0	4.0	2.6	2.9
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	7.3	7.5	7.1	4.9	7.7	6.8	6.0	8.9	7.8	6.0
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
DUNMORE.										
General Death Rate,	16.5	13.5	15.3	17.1	16.9	17.5	18.3	16.8	16.9	17.5
Sanitary Index,	8.4	5.3	7.0	8.1	8.2	8.8	8.1	7.9	7.9	8.0
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate.	8.1	8.2	8.3	9.0	8.7	8.7	10.2	8.9	9.0	9.5
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

DUQUESNE.										
General Death Rate.	20.3	16.7	14.0	16.3	12.4	10.9	11.3	13.6	11.5	10.0
Sanitary Index,	12.9	10.0	8.0	9.4	7.6	5.4	5.6	8.2	6.1	5.0
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	7.4	6.7	6.0	6.9	4.8	5.5	5.7	5.4	5.4	5.0
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
EASTON.										
General Death Rate,	16.4	17.2	14.1	15.3	16.3	16.8	17.3	17.1	17.0	15.6
Sanitary Index,	5.4	5.2	3.4	4.2	4.2	4.6	3.5	4.1	4.1	4.0
Group Sanitary Index.	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	11.0	12.0	10.7	11.1	12.1	12.2	13.8	13.0	12.9	11.6
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	11.1
ERIE.										
General Death Rate,	14.2	15.6	15.6	15.5	14.8	16.2	15.0	16.0	14.6	15.0
Sanitary Index,	5.1	5.4	5.0	5.9	4.8	6.3	5.0	5.3	4.6	3.4
Group Sanitary Index,	5.2	5.2	5.1	5.1	5.4	4.9	4.8	4.9	4.9	4.4
Residual Rate,	9.1	10.2	10.6	9.6	10.0	9.9	10.0	10.7	10.0	11.6
Group Residual Rate,	9.3	10.2	9.5	9.4	9.9	9.8	9.7	10.4	9.7	10.2
GREENSBURG.										
General Death Rate,	....	....	....	....	19.8	15.7	14.7	17.5	15.7	13.8
Sanitary Index,	....	....	....	....	6.7	3.7	3.9	5.1	4.3	3.1
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	13.1	12.0	10.8	12.4	11.4	10.7
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
HARRISBURG.										
General Death Rate,	14.4	14.8	13.9	14.6	14.6	15.1	14.3	14.1	13.9	14.2
Sanitary Index,	5.0	4.1	4.2	4.3	4.8	4.1	4.0	3.5	3.2	3.5
Group Sanitary Index,	5.2	5.2	5.1	5.1	5.4	4.9	4.8	4.9	4.9	4.4
Residual Rate,	9.4	10.7	9.7	10.3	9.8	11.0	10.3	10.6	10.7	10.7
Group Residual Rate,	9.3	10.2	9.5	9.4	9.9	9.8	9.7	10.4	9.7	10.2
HAZLETON.										
General Death Rate,	13.2	11.7	10.6	14.6	16.9	13.0	15.1	15.5	15.4	18.6
Sanitary Index,	5.4	3.9	2.9	5.6	5.6	3.8	4.7	4.7	5.1	6.0
Group Sanitary Index,	7.2	6.1	5.9	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	7.8	7.8	7.7	9.0	11.3	9.2	10.4	10.8	10.3	12.6
Group Residual Rate,	9.4	9.9	9.3	10.1	11.5	10.7	11.1	13.6	11.0	11.1
HOMESTEAD.										
General Death Rate,	18.3	18.1	14.4	14.6	16.4	11.8	13.4	14.2	12.2	10.7
Sanitary Index,	10.3	10.2	7.1	7.8	8.5	7.2	7.0	7.5	6.6	6.0
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.0	7.9	7.3	6.8	7.9	4.6	6.4	6.7	5.6	4.7
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

JOHNSTOWN.										
General Death Rate,	15.1	14.3	14.0	15.8	16.6	14.4	15.3	16.9	14.7	14.1
Sanitary Index,	6.2	6.0	5.6	7.2	7.0	6.3	6.3	6.7	6.3	5.4
Group Sanitary Index,	6.3	5.2	5.1	5.1	5.4	4.9	4.8	4.9	4.9	4.4
Residual Rate,	8.9	8.3	8.4	8.6	9.6	8.1	9.0	10.2	8.4	8.7
Group Residual Rate,	10.1	10.2	9.5	9.4	9.9	9.8	9.7	10.4	9.7	10.2
LANCASTER.										
General Death Rate,	15.4	13.4	15.1	13.8	15.2	14.5	14.3	13.7	14.1	16.1
Sanitary Index,	5.8	3.6	4.4	4.1	3.8	3.7	3.7	3.7	3.7	3.9
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.4
Residual Rate,	9.6	9.8	10.7	9.7	11.4	10.8	10.6	10.0	10.4	12.2
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	10.2
LEBANON.										
General Death Rate,	16.1	14.7	14.4	16.6	16.9	15.8	14.9	16.9	16.0	16.1
Sanitary Index,	5.2	4.2	3.9	4.7	5.2	4.8	3.4	5.7	3.9	3.9
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	11.2	10.5	10.5	11.9	11.7	11.0	11.5	11.2	12.1	12.2
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
McKEES ROCKS.										
General Death Rate,	....	....	....	....	16.5	10.5	11.5	16.9	10.1	10.3
Sanitary Index,	....	....	....	....	9.4	5.5	6.3	9.3	6.1	4.7
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	7.1	5.0	5.2	7.6	4.0	5.6
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
McKEESPORT.										
General Death Rate,	21.7	21.8	18.1	16.8	20.0	14.5	14.8	15.4	13.9	13.6
Sanitary Index,	9.9	9.4	8.2	7.2	8.6	4.9	5.3	5.8	5.1	4.9
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	11.8	12.4	9.9	9.6	11.4	9.6	9.5	9.6	8.8	8.7
Group Residual Rate,	10.1	11.2	10.5	10.1	11.5	10.7	11.1	13.6	11.0	11.1
MAHANOY CITY.										
General Death Rate,	20.1	15.4	18.1	16.8	17.3	17.1	15.7	16.6	11.0	13.3
Sanitary Index,	9.9	6.5	7.7	7.2	8.5	8.2	6.7	6.6	4.4	6.2
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	10.2	8.9	10.4	9.6	8.8	8.9	9.0	10.0	6.6	7.1
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
MEADVILLE.										
General Death Rate,	12.8	17.5	15.2	16.4	13.7	13.4	16.6	15.4	14.7	16.3
Sanitary Index,	2.3	3.7	3.3	3.3	2.4	3.0	2.9	3.6	3.6	2.0
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	10.5	13.8	11.9	13.1	11.3	10.4	13.7	11.8	11.1	14.3
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

MONESSEN.										
General Death Rate,	....	....	....	....	12.8	10.7	10.0	10.8	9.8	8.6
Sanitary Index,	....	....	....	....	7.8	6.2	5.6	6.0	5.5	5.7
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	5.0	4.5	4.4	4.8	4.3	2.9
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
MOUNT CARMEL.										
General Death Rate,	13.1	15.4	13.8	14.0	13.2	10.6	12.3	11.1	10.9	9.9
Sanitary Index,	6.6	8.3	6.8	7.0	6.1	4.4	5.8	4.8	5.1	4.7
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	6.5	7.1	7.0	7.0	7.1	6.2	6.5	6.3	5.8	5.2
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
NANTICOKE.										
General Death Rate,	15.4	13.3	16.3	15.1	17.2	14.5	15.0	14.5	14.8	12.7
Sanitary Index,	8.9	5.6	8.5	7.3	8.3	5.9	6.6	5.5	5.7	4.8
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	6.5	7.7	7.8	7.8	8.9	8.6	8.4	9.0	9.1	7.9
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
NEW CASTLE.										
General Death Rate,	15.5	16.6	14.1	14.3	15.9	14.4	14.4	13.5	11.7	12.7
Sanitary Index,	6.1	5.7	4.8	5.5	4.9	5.5	5.1	5.2	4.0	3.9
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	9.4	10.9	9.3	8.8	11.0	8.9	9.3	8.3	7.7	8.8
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	11.1

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
NORRISTOWN.										
General Death Rate,	23.7	23.9	22.0	21.8	24.4	21.8	21.8	22.3	21.2	21.7
Sanitary Index,	7.3	5.9	5.1	5.4	5.5	4.8	5.8	5.1	4.9	5.3
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	16.4	18.0	16.9	16.4	18.9	17.0	16.0	17.2	16.3	16.4
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	11.1
NORTH BRADDOCK.										
General Death Rate,	....	....	....	....	13.4	11.4	10.6	11.9	9.6	11.1
Sanitary Index,	....	....	....	....	6.5	5.9	4.7	5.2	4.7	5.4
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	6.9	5.5	5.9	6.7	4.9	5.7
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
OIL CITY.										
General Death Rate,	11.9	11.5	12.7	12.9	12.5	12.1	12.2	13.8	13.3	11.4
Sanitary Index,	4.0	3.3	2.9	4.4	3.8	3.4	3.5	3.7	3.3	2.4
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	7.9	8.2	9.8	8.5	8.7	8.7	8.7	10.1	10.0	9.0
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

OLD FORGE.										
General Death Rate,	....	....	....	....	17.4	13.9	16.0	13.6	14.5	10.5
Sanitary Index,	....	....	....	....	9.1	6.9	9.0	6.0	6.5	5.1
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	8.3	7.0	7.0	7.6	8.0	5.4
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
PHILADELPHIA.										
General Death Rate,	19.1	18.6	17.3	16.4	17.4	16.6	15.3	15.7	16.1	15.7
Sanitary Index,	7.9	7.0	6.5	5.9	6.1	5.6	4.7	5.0	5.0	4.5
Group Sanitary Index,	8.0	7.8	6.5	5.7	6.1	5.4	4.9	5.2	5.0	4.6
Residual Rate,	11.2	11.6	10.8	10.5	11.3	11.0	10.6	10.7	11.1	11.2
Group Residual Rate,	11.2	11.0	10.7	10.5	11.4	10.7	10.5	10.8	10.9	10.8
PHOENIXVILLE.										
General Death Rate,	18.8	19.0	17.3	15.4	19.4	17.6	17.0	16.0	16.1	16.6
Sanitary Index,	9.0	6.1	8.0	5.2	7.4	6.5	6.1	5.7	6.1	5.1
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	9.8	12.9	9.3	10.2	12.0	11.1	10.9	10.3	10.0	11.5
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
PITTSBURGH.										
General Death Rate,	19.9	19.3	17.3	15.8	17.9	14.9	15.9	17.1	15.7	15.0
Sanitary Index,	8.6	7.7	6.5	5.4	6.2	5.1	5.1	5.1	5.3	4.8
Group Sanitary Index,	8.0	7.8	6.5	5.7	6.1	5.4	4.9	5.2	5.0	4.6
Residual Rate,	11.3	11.6	10.8	10.4	11.7	9.8	10.8	12.0	10.4	10.2
Group Residual Rate,	11.2	11.0	10.7	10.5	11.4	10.7	10.5	10.8	10.9	10.8

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
PITTSTON.										
General Death Rate,	19.3	17.5	20.3	20.2	17.1	16.7	18.2	16.4	19.4	16.3
Sanitary Index,	7.8	6.0	8.3	9.2	6.2	4.7	6.5	5.2	6.1	4.4
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	11.5	11.5	12.0	11.0	10.9	12.0	11.7	11.2	13.3	11.9
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
PLYMOUTH.										
General Death Rate,	15.9	15.5	15.9	14.1	15.1	14.5	12.8	10.6	11.3	9.3
Sanitary Index,	7.3	6.6	8.2	6.4	6.4	6.6	5.1	3.8	5.5	3.7
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.6	8.9	7.7	7.7	8.7	7.9	7.7	6.8	5.8	5.6
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
POTTSTOWN.										
General Death Rate,	15.3	16.5	13.8	13.5	15.0	13.3	12.5	13.4	13.7	13.9
Sanitary Index,	4.8	5.2	3.8	3.8	4.8	4.2	3.6	4.0	3.7	3.4
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	10.5	11.3	10.0	9.7	10.2	9.1	8.9	9.4	10.0	10.5
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

POTTSVILLE.										
General Death Rate,	17.1	19.2	18.6	17.6	18.7	18.6	19.7	19.3	16.7	18.3
Sanitary Index,	4.3	5.0	5.2	4.3	5.5	5.8	5.0	4.7	4.6	4.6
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	12.8	14.2	13.4	13.3	13.2	12.8	14.7	14.6	12.1	13.7
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
READING.										
General Death Rate,	14.8	15.6	14.7	13.8	15.3	14.3	13.8	15.1	14.1	13.8
Sanitary Index,	5.5	5.3	5.2	4.2	5.2	4.7	4.1	5.2	4.4	3.9
Group Sanitary Index,	5.2	5.2	5.1	5.1	5.4	4.9	4.8	5.2	5.0	4.6
Residual Rate,	9.3	10.3	9.5	9.6	10.1	9.6	9.7	9.9	9.7	9.9
Group Residual Rate,	9.2	10.2	9.5	9.4	9.9	9.8	9.7	10.8	10.9	10.8
SCRANTON.										
General Death Rate,	16.4	15.7	16.4	16.3	16.4	14.8	14.6	14.8	15.8	14.6
Sanitary Index,	5.9	6.0	6.3	6.0	5.4	4.0	5.0	4.4	5.1	4.5
Group Sanitary Index,	8.0	7.8	6.5	5.7	6.1	5.4	4.9	5.2	5.0	4.6
Residual Rate,	10.5	9.7	10.1	10.3	11.0	10.8	9.6	10.4	10.7	10.1
Group Residual Rate,	11.2	11.0	10.7	10.5	11.4	10.7	10.5	10.8	10.9	10.8
SHAMOKIN.										
General Death Rate,	15.2	13.0	13.6	12.8	13.7	12.5	13.3	12.5	11.5	11.2
Sanitary Index,	6.0	5.3	5.0	5.9	5.1	4.5	4.8	4.2	4.3	4.8
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	9.2	7.7	8.6	6.9	8.6	8.0	8.5	8.3	7.2	6.4
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
SHARON.										
General Death Rate,	16.3	21.4	14.6	13.9	16.5	12.0	11.4	14.2	11.8	13.6
Sanitary Index,	6.7	8.6	6.5	5.8	6.9	4.0	4.1	6.0	4.0	4.5
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	9.6	12.8	8.7	8.1	9.6	8.0	7.3	8.2	7.8	9.1
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
SHENANDOAH.										
General Death Rate,	23.6	19.1	19.3	18.0	17.0	19.1	20.2	18.9	16.4	13.7
Sanitary Index,	14.0	8.9	10.0	9.7	10.0	10.5	11.1	10.4	8.1	7.2
Group Sanitary Index,	7.2	6.1	5.9	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	9.6	10.2	9.3	8.3	7.0	8.6	9.1	8.5	8.3	6.5
Group Residual Rate,	9.4	9.9	9.3	10.1	11.5	10.7	11.1	13.6	11.0	11.1
SOUTH BETHLEHEM.										
General Death Rate,	16.5	16.2	13.9	16.2	16.6	14.8	15.2	14.8	12.5	12.7
Sanitary Index,	8.3	8.1	7.6	8.8	8.0	8.3	8.1	8.4	6.3	7.0
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.2	8.1	6.3	7.4	8.6	6.5	7.1	6.4	6.2	5.7
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

STEELTON.										
General Death Rate,	18.7	19.3	13.9	13.0	15.2	13.0	13.3	12.5	11.2	10.1
Sanitary Index,	10.0	10.0	7.0	6.7	8.1	7.8	5.7	6.2	5.1	3.7
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.7	9.3	6.9	6.3	7.1	5.2	7.6	6.3	6.1	6.4
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
SUNBURY.										
General Death Rate,	13.6	12.1	11.9	11.9	13.6	12.7	10.8	11.7	10.7	11.5
Sanitary Index,	4.6	3.4	3.3	3.6	4.5	3.9	3.8	2.6	2.8	2.6
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	9.0	8.7	8.6	8.3	9.1	8.8	7.0	9.1	7.9	8.9
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
UNIONTOWN.										
General Death Rate,	....	....	....	....	18.3	13.1	15.6	15.3	14.4	13.2
Sanitary Index,	....	....	....	....	5.5	4.6	5.1	4.1	3.6	3.4
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	12.8	8.5	10.5	11.2	10.8	9.8
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
WARREN.										
General Death Rate,	12.2	10.6	11.2	13.1	13.4	8.9	12.5	11.6	11.5	10.8
Sanitary Index,	3.5	2.0	2.3	2.9	4.9	2.0	2.6	2.8	2.6	1.9
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.7	8.6	8.9	10.2	8.5	6.9	9.9	8.8	8.9	8.9
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5

TABULATION OF MUNICIPALITIES—Continued.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915
WASHINGTON.										
General Death Rate,	....	....	....	....	15.9	13.6	13.3	15.4	14.6	13.9
Sanitary Index,	....	....	....	....	4.5	4.2	4.2	4.2	4.8	4.8
Group Sanitary Index,	....	....	....	....	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	....	....	....	....	11.4	9.4	9.1	11.2	9.8	9.1
Group Residual Rate,	....	....	....	....	9.7	8.7	8.8	9.3	8.8	8.5
WEST CHESTER.										
General Death Rate,	20.1	22.3	20.8	17.1	19.6	19.7	19.8	17.1	22.2	20.9
Sanitary Index,	5.4	7.1	5.5	4.7	3.6	4.7	5.5	4.9	5.5	5.1
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	14.7	15.2	15.3	12.4	16.0	15.0	14.3	12.2	16.7	15.8
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
WILKES-BARRE.										
General Death Rate,	14.7	16.7	15.5	15.5	16.6	15.5	15.0	15.1	15.4	16.2
Sanitary Index,	4.9	5.4	5.2	4.9	5.4	4.3	4.7	3.9	4.8	4.8
Group Sanitary Index,	5.2	5.2	5.1	5.1	5.4	4.9	4.8	4.9	4.9	4.4
Residual Rate,	9.8	11.3	10.3	10.6	11.2	11.2	10.3	11.2	10.6	11.4
Group Residual Rate,	9.3	10.2	9.5	9.4	9.9	9.8	9.7	10.4	9.7	10.2

WILKINSBURG.										
General Death Rate,	15.1	13.7	13.6	13.7	14.9	12.8	13.7	16.3	13.7	12.7
Sanitary Index,	6.3	3.6	4.1	3.0	3.8	3.1	2.7	3.7	3.3	3.1
Group Sanitary Index,	7.2	6.1	5.9	5.8	6.1	5.1	5.2	5.2	4.8	4.5
Residual Rate,	8.8	10.1	9.5	10.7	11.1	9.7	11.0	12.6	10.4	9.6
Group Residual Rate,	9.4	9.9	9.3	9.2	9.7	8.7	8.8	9.3	8.8	8.5
WILLIAMSPORT.										
General Death Rate,	15.9	18.3	16.3	15.8	15.3	16.1	17.7	16.2	16.3	16.5
Sanitary Index,	4.2	5.3	4.0	4.6	4.1	3.9	3.4	3.2	3.9	3.9
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.9
Residual Rate,	11.7	13.0	12.3	11.2	11.2	12.3	14.3	13.0	12.4	12.6
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	11.1
YORK.										
General Death Rate,	14.4	15.5	13.8	13.1	16.5	14.3	13.0	14.6	13.7	12.4
Sanitary Index,	5.3	5.4	5.1	4.3	6.0	4.6	3.1	4.1	4.1	3.7
Group Sanitary Index,	6.3	5.8	5.5	5.5	5.8	5.0	4.9	5.2	5.0	4.4
Residual Rate,	9.1	10.1	8.7	8.8	10.5	9.7	9.9	10.5	9.6	8.7
Group Residual Rate,	10.1	11.1	10.5	10.1	11.5	10.7	11.1	13.6	11.0	10.2

*The blank years in this table indicate the period when the population was under 10,000.

N. B. Farrell is not included in this comparison because we have no complete data for an estimate of the change in its population. It was made from South Sharon and certain parts of the adjoining township in 1912, but as South Sharon itself did not become a borough until 1901, the census data are insufficient.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77.	Jan.,	1916.	The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78.	Feb.,	1916.	The Sanitary Index. A Method of Measuring Public Health Work.

NOTE.—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers 7, 9, 10, 33, 39, and 49 are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 79. HARRISBURG, PA. March, 1916.

PROPER HOUSING MEANS CLEANLINESS.

An address delivered in the Fourth Annual Conference of the Pennsylvania Housing and Town Planning Association at Reading, March 16, 1916.

The home is the birth place of the units of the family and the nation. Upon these units the strength, prosperity, independence, happiness, and life of our nation depend.

In order to have the abiding places of men healthful, we must have them clean—yes, clean in the broadest sense. We must have clean air—that element which affects life more quickly than anything else; we must have clean water, which next to air is most necessary to our lives; we must also have clean food, clean bodies, clean dress, and clean houses, none of which can be maintained without clean air and clean water.

Physiological housing means cleanliness of the environment, reproducing natural conditions as nearly as possible. Let there be no misconceptions regarding this point. The modern man can not hope to "return to nature" in the sense of going back to primitive conditions, nor should he be encouraged to dream of any such retrogression much as certain theorists and pseudo-philosphers or exuberant faddists would encourage that idea. Here and there an individual may be as primitive as his fancy may dictate, but for most men, for the average man, any such course is out of the question. What he can do is to seek to determine and understand what was essential and vital in those primitive conditions and to see to it that such things are preserved as the character of the domestic environment changes.

Housing or the abode of man in its broadest sense cuts a wide swath in the field of hygiene. Public and personal hygiene are so intimately associated that they are often interlocked so that each depends upon the other.

Civilization has brought about a concentration which complicates in an increasing ratio the problem of keeping up the supply of natural conditions to the individual until it has reached such proportions that only the State with its larger powers and resources can cope with the existing situation.

It was with a full realization of this fact that the General Assembly, in the progressive session of 1905, created a Department of Health and conferred broad powers and grave responsibilities upon the Commissioner and his Advisory Board. The law imposes upon the Commissioner of Health the duty of protecting the health of the people of the State, determining and employing the most efficient and practical means for the prevention and the suppression of disease. In order to accomplish this the Commissioner shall cause examinations to be made of nuisances or questions affecting the security of life and health in any locality, and authority is given to him and his representatives to enter upon and examine all grounds, buildings, and places in the State; to order the abatement of nuisances detrimental to the public health or causes of disease and mortality, and to abate such conditions.

Considering the real question which arises in the housing problem—the cleanliness which must be maintained—this in itself is a comprehensive housing law and accordingly the work of every Division of the Department reflects directly or indirectly upon housing. Take for instance the Division of Sanitary Engineering of Pennsylvania's Department of Health, with its little army of watershed inspectors educating the people to keep pollutions out of our streams, wells, and springs upon which man must depend for his water supply. The little army fighting for health teach the people how fatal the waste of man and animals is to human life by carrying deadly microorganisms in water to the very mouths of thirsty humanity. These polluters are shocked when they are told that typhoid fever germs carried in the excreta are often as deadly as prussic acid and cause far more suffering. The idea of placing prussic acid in a stream and killing those who innocently drink the water appeals to them as an unthinkable crime, and the fact that human waste does practically the same thing brings most people to their senses and they become ready to go hand in hand with the health authorities to remedy the mistake that they and their ancestors have made for years. This detail I mention to emphasize the value of practical education.

This same Division of the Department has charge of all public water plants. The Department is now nearly eleven years old and today more than one-half of the water furnished to over eight million people of the State is filtered, and if it were not for the lack of financial ability all would be filtered.

When building a home, a mill, a barn, or almost any kind of a building the first thing to consider is the site and its relation to a water supply and the possibility of proper disposal of the sewage therefrom. This same principle also applies to the municipality which is only a collection of such buildings.

The Division of Sanitary Engineering also has charge of the disposal of sewage. Education has gone so far in this direction that we are being pushed by the applicants for the approval of treatment plants. Just here I want to relate an experience we had in the early days of the Department of Health—when a petition from hundreds of employees of a certain glue factory was received requesting us to stop the company from throwing its waste into the river as the United States had built a dam that caused the filth to back up in front of their homes near the factory. A survey brought to me the fact that a nuisance existed and that something would have to be done. This resulted in our requesting the manufacturers to make a study of the situation at once and report in the near future what they could do. Their answer stated that they could not do anything at once but shut down the factory which would throw all of the petitioners out of work. A conference resulted in their employing mechanical engineers and chemists to experiment with the waste. At the end of six months they reported progress and asked for more time, which was granted. The wrath of the factory hands was brought down upon the Department, yet it stood its ground and carried the censure. In about two months more a report came from the manufacturers that they had succeeded in making a piece of machinery that would take out the objectionable matter from the waste and that they would have one made sufficiently large to handle their waste. Not long after I received word that the material recovered by the new machine had sufficient value to pay for the process and that they hoped to make a profit from the fats, etc., recovered. This incident illustrates how injurious revolutionary measures would have been which would have closed the factory and turned out the workers to seek employment elsewhere. It at the same time emphasizes a splendid result obtained by what we may call an evolutionary measure. It has been well said that the law to be effective must follow and not lead public sentiment. The broad powers conferred upon the Commissioner of Health and his Department if exercised in a revolutionary way might have occasioned much hardship and suffering and brought about antagonism which would have resulted in their repeal.

It is due to precisely this sort of consideration that the work of the Department of Health in cleaning up the water supplies by the exclusion of untreated sewage has gone on with a deliberation which has seemed to some hasty and superficial judges to be akin to slowness. Many of our towns have developed methods of sewage disposal which are based on an inheritance from a time when the communities were small and little heed was paid to the rights of other communities, particularly of those further down stream. It was indeed a period of indifference, and existence took the line of least resistance in procuring water and getting rid of wastes, as well as in placing buildings for homes or shops. No one thought of appealing to the sanitary conscience, in fact few or none realized that such a thing existed. Slowly the dwellers in towns, with growing necessities but bad sewer systems, have awakened to their own needs and to the rights of their neighbors, and thus have grown ready to join with the Department in the enforcement of regulations concerning pure water. This awakening process has been brought about in some cases by the chastening experience of epidemics of disease attributable to polluted water or related causes. Slowly the knowledge reaches the man in the street that the purification of the water supply has much to do with the removal of diseases and the reduction of mortality. Gradually he recognizes that the general fall of over seventy-two per cent. in deaths from typhoid fever in the State since 1906 must be placed in large part to the credit of cleaner water. As such men are thus educated they come to have a clearer view of the reasonableness and desirability of the Act to guard the waters of the State, also adopted in 1905 and framed to the end that our people might be supplied with clean water. The work of removing sewage and filtering the waters follows the path of evolution. We cannot stop up the sewers of Philadelphia and ruin the city—we must require it to take care of the waters that pass through and around its boundaries by having Philadelphia build its new sewers properly and gradually erect treatment plants. This plan will continue to evolve until Philadelphia will awaken some day in the future to have a comprehensive system taking reasonably good care of her sewage.

Following in the line of this evolution in the year 1913, the Legislature passed a most creditable Housing Bill prepared by Representative Watson of Indiana County. While in a broad way this Act did not add to the powers of the Department of Health, it made its powers more specific and furnished admirable machinery for its execution. Admirable as it was, this legislation did not provide a special appropriation to carry out its objects, but the law was so framed that the general appropriation of the Department could be utilized for this purpose. That appropriation, however, had not contemplated any considerable diversion of funds to work on housing, or to other good enterprises. It required very little reflection to recognize the kinship of housing work to the various lines of work already successfully pursued in the Department. Not merely the efforts of the Sanitary Engineer to care for the water and sewage, but also the visits of the Dispensary nurses in numerous homes of the indigent, as well as the supervision exercised by the County Medical Inspectors who have their men in many houses in the township in times of epidemics, are all very near in character to the visits of an officer of a housing bureau and these existent agencies may well be utilized as important adjuncts in fulfillment of the purposes of the housing bill.

This led to a balancing of the claims of the various fields of activity cultivated by the Department and it was found possible to cut down the amounts expended for certain kinds of field work, at least temporarily, and thus gain funds that the Housing Bureau, with a saving in overhead charges, might work in harmony with the various divisions, tentatively, or until a fuller knowledge of the situation should reveal the need of a more extended and elaborate organization.

The work of some of our Divisions comes closer to the housing problems than that of others. Perhaps the Division for the Control of Tuberculosis, more particularly the Sub-division of the Tuberculosis Dispensaries, touches these questions most intimately. Here what we used to call our Tuberculosis Exhibit, but which has now expanded so as to cover wider fields of sanitary endeavor, plays an important part in the education of the public. Didactic teaching, primarily concerning tuberculosis, brings the lessons of private and public hygiene home to thousands who attend these gatherings. Numerous models and pictures illuminate the truths which our lecturers and demonstrators teach. Simple devices illustrate methods of ventilation and other practical matters. This teaching is aided by a large number of pamphlets and circulars, some of them in several foreign tongues, which are freely distributed wherever the exhibit is set up. The newspapers all over the State are regularly utilized for these ends by the "weekly talks" and other articles concerning hygiene and many of these contributions have a very direct bearing on the conduct of the household, in a word, on the housing problem in a broad sense. Other publications, magazines, and bulletins participate in our educational work, and often we are helped by the clergy who are particularly favorably situated for spreading abroad the truths which we desire to have widely known.

Even more intimate is the connection of our Dispensary Nurses with the problem of the household. The visits made by these nurses are far more than perfunctory inspections of persons who happen to be enrolled as patients in our Dispensaries. The entire family is seen and the effort is made to give practical instruction in ventilation and cleanliness and yet other things as important parts of the campaign against tuberculosis—and thus the campaign comes to have a wider scope and often many other ills are attacked and overcome. The emphasis laid on fresh air in the home and the value of outdoor sleeping rooms and the insistent advocacy of clean dwellings and clean persons to live in them are no small steps towards the solution of problems in housing. The seed here sown falls on all sorts of soil; often it springs up and flourishing plants appear. The people learn that the State is their friend and would help them to help themselves. Nor does the teaching end with the family for which the instruction was at first intended. Often the nurse finds that a whole neighborhood has been improved by her visits to a single household.

A study of living conditions of 5741 dispensary cases made in 1914 showed that 3807 of them, or about two-thirds, came from homes of three rooms or less, and in 2800 of these cases there were four or more members of the family living in the three or two rooms, and in many instances in one room. In five cases families of nine were found living in one room; in sixty-seven cases families of nine were found living in two rooms, and in all of the cases studied the average number of persons to each living room was 1.8. Applied to our ordinary size dwelling house of eight rooms that would mean an average of more than fourteen persons to each such home. Surely such an object lesson should teach us there is a great field in the housing work for the suppression of tuberculosis. In fact these two lines of effort for social betterment run very near one another, and are often identical.

The buildings in which we live in this climate that has very cold and very warm weather, accompanied by driving rains and snows, are not so bad if people know how to use them. Here comes into play our educational work. Through the newspaper we can reach almost every citizen over our forty-five thousand square miles of territory and through these we must teach what purity of air, water, food, body, house, mind, etc., means. Then we must teach them that clean air blowing through their homes helps to cleanse the contents and that clean water and soap will do the rest with the help of the sun's rays. If it were not for the unwashable things in our houses, washing with soap and water and cleansing with fresh air would be sufficient to rid them of the germs of disease without the use of disinfectants, but on account of the fabrics, pictures, books, and other articles that we cannot wash, we add disinfectants to kill the germs of disease. Our living rooms should be thoroughly aired every day to help keep them clean. If this were done people would soon understand the value of movable windows and would not keep them closed at all times. When the weather is too cold to air the rooms by having the windows up during the day they can be aired at night.

In this climate we have to heat our houses during the winter season. This should be done by a method of introducing pure warm air instead of pure cold air. The heating question is a grave one.

In our rules and regulations under our new Bureau of Housing We must provide for an abundant admission of fresh air in connection with any form of heating. To-day thousands of homes, offices, and buildings of the better sort used for sundry purposes, get their heat from direct steam or hot water, given off in tightly closed rooms with windows all down and provided with weather strips. This is a great coal saver but a death trap that insidiously brings to the occupants ill health and an early death. Since direct steam and hot water systems have been introduced pneumonia has kept pace with their growth, and to-day sends more people to their graves than any other known disease.

Direct radiators in rooms with steam or hot water, plus weather strips around the doors and windows, shut the air out almost completely—the only air that gets entrance comes in under the doors or through the walls. The life-sparing qualities of the air soon become used up under such circumstances—the air is robbed of its oxygen and is filled with organic matter from the lungs and skin—such a condition of things seems to suit the germ of pneumonia. These conditions exist in dwellings which one supposes to lie outside the limits of any problem of housing. Conditions in the humbler homes and in the smaller workshops may be worse, for here heating is often done by stove or furnace in such a fashion as to permit the introduction of noxious gases in addition to precluding proper ventilation. If we cannot afford an indirect heating system, there should be some system of letting in cold air over or under the radiators. It were better to put the radiators in front of windows and have the windows open above or equipped with a window-board so that the air comes down over the radiator. This, however, is not done because of the extra coal bill and the money is put in fancy furniture or some other unnecessary thing while we starve for fresh air and become poisoned with organic matter and germs of pneumonia and other diseases. When the people learn the value of such improvements they will adopt them, and in the majority of homes the additional cost of fuel will be more than offset by reductions in doctor's bills, drugs, and unnecessary expenses. Education all along the line of sanitary measures applied in the home will remedy a vast number of insanitary conditions from which we are suffering.

The Department of Health is well equipped to do a broad educational work through its several divisions. The Division of Engineering, the Tuberculosis Division with its hundred and fifteen Dispensaries, and the Dispensary Nurses visiting the homes of the tuberculous poor, the School Medical Inspectors inquiring into the sanitary conditions of school buildings, the Health Officers who quarantine and disinfect the premises in which communicable diseases have occurred, the Watershed Inspectors who trace sewage from the interior of buildings to its discharge, the Traveling Teaching Division, with models, moving pictures, legends, and literature in many languages, and a comprehensive Statistical Bureau giving us quick notice when health conditions are bad and thus directing our field forces, all combine in dividing up the overhead charges with the Bureau of Housing, and in enabling us to do a vast amount of work that the State could not afford to do in any separate housing department. The Commonwealth must couple economy with efficiency. The undertaking is great and under the most economical system will require much money. It is, however, the best investment the people can make. If we stop to reduce the result into dollars and cents it returns a thousand fold. We arrest suffering, death, and the degeneration of the human family, and turn the tide to healthier, happier, and more useful lives.

Our experience has taught us that money spent by great industries for sanitary factories and homes for their employees always comes back with profit in dollars and cents. This same result always obtains to the investor where money is invested in better homes for working people. Landlords can afford to regard sanitary conditions for by so doing tenants are more healthy, there is less sickness, fewer idle days, smaller doctor and druggist bills, and more money to pay rent and give to the landlord a reasonable return for his investment in sanitary planning and consideration.

Merely as an appeal to the pocket it ought to be comparatively easy to convince those that provide housing for their workmen that it actually pays to furnish safeguards in the home as well as in the factory. Much more difficult and slow, sometimes almost hopeless, is the education of the individual workman, particularly among our foreign laborers who commonly strive to gain quickly what seems to them a small fortune that they may return home again to spend the rest of their lives in luxury according to standards there in vogue. Here it will be necessary to adopt very considerable restrictions for the improvement of housing conditions. Some of the old shacks of an earlier time, and still not uncommon, were so open in construction that the ingress of fresh air was easy and the ventilation good although the houses were otherwise bad because of a pronounced lack of cleanliness. Many of the small houses of these later days are more attractive and thus encourage better living, but from the point of view of the sanitarian the heating arrangements are often very defective. It is, however, the overcrowded tenement house in many industrial centres, often caring for regular shifts of sleepers, that needs careful supervision and strenuous regulation, possibly complete extinction. Here pressure must come from above, for most of those that dwell in these places have no initiative, indeed many of them seem really to prefer dirt and bad air, not as yet knowing anything better. Doubtless social impulses are in play and the desire for companionship is an impelling force but vaguely recognized. It ought to be possible to meet this demand, which in itself is perfectly legitimate, without a sacrifice of salubrity.

A few words here on the fallacy of laws requiring a given number of cubic feet for each occupant. The number of cubic feet per capita depends upon the plan of the building and its location and surroundings. We must have a moving atmosphere to maintain the highest degree of health and the air should be pure and not rarefied. To get moving air we must have space.

Our Red Men, native Americans, were clever enough to build tents out of the skins of wild animals and to move their camps quite frequently as tribal symbols found in their burial mounds scattered over a large extent of country indicate. To get proper space we must move out of our crowded municipalities into the suburbs. For our working people to have the advantage of well organized villages where houses have yards of reasonable size and are near parks and playgrounds. they must have quick, sanitary, and economical transportation, and the day is coming when if private corporations are unable to supply that sort of transportation at a reasonable price, the government will have to furnish it.

It is unfortunate that men thirsty for big fortunes have purchased franchises from our local governments, formed stock companies and watered the stock to make themselves rich over night at the expense of the traveling public. The present managers of these corporations are up against a hard problem to pay the interest on the watered stock and give the public reasonable transportation. They are, however, bringing in new appliances to reduce the cost of maintenance and as the population goes on increasing their income will better meet their demands and trasportation may be reduced, and then we can more easily overcome the present over populated districts in the large municipalities.

The State law bearing directly on tenements is a clean-cut, well-rounded up Act of Assembly. As a forerunner to enforcing this law we have waged a campaign of education, and we are now putting it into action with success.

I do hope those interested in improving housing conditions in our great Commonwealth will take a broad view of the subject, and if an attempt is made for any more organic laws that they will be broad and not loaded up with too much petty detail. As things are we are evolving into better days.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 80. HARRISBURG, PA. April, 1916.

PENNSYLVANIA AND HER MUNICIPALITIES.

An Address before the State Association of Boroughs in its Fifth Annual Convention at Harrisburg, April 12, 1916.

It is an honor to have the opportunity of addressing a body which represents so largely the common interests of this, perhaps the greatest Commonwealth of the United States. We all have reason to be proud of Pennsylvania and it should be the aim of every good citizen to help advance her interests, industrially, socially, and politically.

The development of our natural resources and the growth of our great industries have brought about a proportionate increase in the number and population of our municipalities. Mines and mills are constantly bringing more workers into our centres of population and villages are developing into towns and towns into cities. The municipalities of the State are classified as cities of the First Class, cities of the Second Class, cities of the Third Class, Boroughs, and First Class Townships.

Our population at present is approximately eight and one-half millions. Of this number about 6,180,000 live within the corporate limits of the several municipal governments, leaving only about 2,320,000 in rural districts in townships of the Second Class. In our city of the first class—Philadelphia—we have a population of about 1,645,000; in the two cities of the second class—Pittsburgh and Scranton,— 746,000; in the thirty-three third class cities, 1,023,000; in the nine hundred and forty-two Boroughs, 2,490,000; and in the forty-five townships of the first class, 273,000.

Representing the Boroughs of the State, you are here in the interests of the largest number of our people living under the same form of local government, therefore, your deliberations should receive the most careful attention of our legislators and of the central government of the State.

The growth of the Boroughs of the State, both in number and population, has been rapid. About one-third have been erected in the last twenty-five years and it is safe to assume that in the same short period of time the borough population of the State has been doubled, and the fact that we have at present over five hundred villages, ranging in population from three hundred to three thousand would indicate that this growth will be continuous. The problems which confront you who meet in the sommon interests of this form of our municipal life are broader and more complex than those which representatives of cities have to consider because of the wide differences of condition which exist.

Many of the Boroughs situated in the agricultural districts are little cities of homes of those who have retired from farming and other active pursuits, while in the mining and manufacturing districts they may be composed almost entirely of workers, in many instances largely of foreign birth. The largest Borough in the State has a population of twenty-eight thousand, the smallest one, seventy-two. Some are closely built up and their population is congested, while in others a few persons are widely scattered over a large district. A Borough along the northern border of the State has an area of over four square miles with a population of six hundred, while the Borough of Shenandoah has about twenty-seven thousand persons living on less than one square mile of territory, yet for the common welfare all of these conditions must be considered and reckoned with in your deliberations.

The first impulse which prompted men to organize themselves into municipal governments was probably for the common safety. Towns were walled in to protect them from invaders and watchmen were stationed to warn against approaching foes. At an early date lights were placed upon street corners to lessen the dangers of the night-time. Police patrolled the streets in order to preserve the internal peace of the community.

Increased traffic soon demanded better streets and side-walks; fire departments became a public necessity for safety from conflagrations. The springs and wells which furnished our forefathers with a supply of drinking water were no longer sufficient or safe for the supply of the increased population and pipes were laid in the streets coming from some adequate source, carrying water to the homes of the people. The introduction of water systems greatly increased the common use of water and brought up the question of disposal of wastes, necessitating the laying of another system of pipes to carry the sewage to some point where it would not be a menace to the people. As civilization advanced the walls became no longer necessary but in all these developments the same idea which prompted the building of them was never lost sight of. The people in their municipal progress were only following the demands of public safety. In many Boroughs you have passed through these successive stages of development.

At one time in the early civilization of Europe, the incorporated towns were largely independent of each other, the central government only levying taxes for the King's treasury, and soldiers for the King's army. This condition occasioned much petty warfare between the towns for local supremacy. Of course, such conditions no longer exist and practically never existed in this country. Municipalities do not need to protect themselves against each other by force of arms but the demands of our increasing population have brought out other dangers to which our municipalities are subject from each other and which must be regulated by a central government.

For this purpose the Act of 1905, known as the "Purity of Waters Act" was adopted. The establishing of systems of water supply encouraged the use of the natural water courses for the disposal of municipal sewage. Towns down stream became dependent for their water supply on the stream which further up was being used for the disposal of the waste of other towns. Therefore, the Legislature took steps to prevent one municipality from infecting the water supply of another with germs of water-borne disease. In the same session of the Legislature the State Department of Health was created, which Department was charged with the enforcement of the "Purity of Waters Act." The beneficent results of this legislation may be the most positively expressed by actual figures. In 1906 we had 3,917 deaths from typhoid fever; in 1907, 3,538; in 1908, 2,450; in 1909, 1,712; in 1910, 1,892; in 1911, 1,716; in 1912, 1,310; in 1913, 1,470; in 1914, 1,071; in 1915, 1,020. In the pursuance of the provisions of the Act of 1905, one hundred and seventy-five of the larger Boroughs either have installed filtration plants for the purification of the water supplies or have built sewage disposal plants for the protection of their neighbors, and others are now under consideration or in course of construction.

As part of their municipal government Boroughs for many years have had police departments and special officers who have had charge of lighting systems, street repairs, and other municipal interests, but it was not until 1893 that there was any organized effort in the State to provide for them official supervision over the health of the people. In that year an Act of Assembly, providing for Boards of Health in the Boroughs was adopted, following closely the provisions of a similar act passed four years earlier for cities of the third class. In 1907 an Act, providing for Boards of Health in

Townships of the first class was adopted, following the provisions of the two former acts. The Borough Act and the First Class Township Act were combined in one by the Act of June 12, 1913, the present law under which Boards of Health are to be established in Boroughs and First Class Townships. This law while it looks toward the internal safety of municipalities is also intended to act as a protection to one centre of population from infection which might be brought in from another or from an outlying district. In this day of rapid and cheap transit facilities residents of different towns and rural communities are brought in much closer contact with each other than they were but a few years ago and additional precautions for the segregation of communicable diseases are more necessary day by day for the safety of our people.

Up until 1905 the Board of Health law for Boroughs had not proved a success and the great majority of Boroughs were without any active Board of Health. This was largely due to the fact that up until that time there was no central authority equipped with the necessary power and means to supervise and encourage local health organizations. Since that time hundreds of Boards of Health have been established and are being maintained with greater or less efficiency. While there has been marked improvement, you are probably all aware that there is yet room for much greater efficiency in public health administration in the Boroughs and in other municipalities as well.

Under the provisions of the Act of June 12, 1913, the Commissioner of Health is authorized to take charge of any borough in which he finds there is not an active and efficient Board of Health and to continue in charge, at the expense of the Borough, until such time as a satisfactory Board is established and organized and ready to assume the duties incident to the administration of public health laws. Under these provisions the Department of Health is at the present time taking care of one hundred and thirteen Boroughs, most of them, however, being small in population. In a number of them we are taking care of the public health work at the request of the local authorities.

In its work of encouraging the organization of Boards of Health in Boroughs, the Department has encountered several difficulties which appear to be common to many of your municipalities. It seems to be difficult to persuade good competent citizens to accept the appointments. Presidents of Councils have reported to us many times that they have made repeated attempts to appoint Boards of Health but did not succeed because they could not get their appointees to accept. This difficulty should not exist. It is true that these appointments do not carry any salary or fee but men everywhere seem anxious to become members of School Boards and to hold other offices which offer no compensation. Important as the supervision of the education of your children may be, it is not more important than the protection of their lives and health, and public health laws are enacted as much for the protection of the children as for those of more advanced years. Boards of Health are too likely to neglect the so-called minor diseases of children. In the year 1915 there were 1,116 deaths in the State from measles and whooping cough and who can tell how many persons go through life with chronic ailments or impaired senses due to these so-called minor diseases in childhood?

Another common difficulty seems to be in the matter of finances. Many Boards of Health which apparently would be willing to perform their duties report to us that Councils do not appropriate to them sufficient funds. This may be a matter largely of sequence and custom but one which thoughtful Councils should remedy. Boroughs out of their revenues have for years appropriated money for their police departments, for fire protection, for lighting and street repairs, and have through habit come to consider these expenditures as necessities first to be provided for and if anything is left in the municipal treasury after all other expenses are met, it may go to the Board of Health and to enforce public health laws. The real prosperity of your Borough depends not upon the character of your streets or the brilliancy of your lights but upon the happiness and prosperity of your citizens for which good health and freedom from the ravages of disease are absolutely essential. In the distribution of your revenues no public utility should be given preference to the protection of the health of your people. It often happens that there is friction between the Board of Health and the Borough Council or other Borough authorities which practically destroys the efficiency of the Board of Health. The Department of Health asks the co-operation, not only of the Boards of Health in your Boroughs but of your Councils and of all your civic bodies. Local jealousies should be banished when the lives of your people are at stake. Just a few weeks ago a Board of Health in a Borough which was overrun by an epidemic of communicable disease, ordered the public schools to be closed. The Board of School Directors refused to obey the order of the Board of Health and instructed their teachers to keep their schools open. The Department of Health was compelled to interfere and we requested the School Board to close their schools. It was a public necessity. Again the School Board refused to co-operate with the Health authorities, not on the ground that it would not be a good thing to do but because they said they wanted to test the authority of the Commissioner of Health to close their schools. In the meanwhile, while they would be litigating, the disease might spread and their children might sicken and die. The intelligence of such gentlemen is appalling.

Friction may often arise because of the lack of understanding on the part of the Board of Health as to the real meaning of their several duties. It is the first duty of local health authorities to enforce the quarantine laws. No condition constitutes so positive a menace to health as the presence in the community of a case of communicable disease. All these should be promptly and efficiently quarantined and disinfected after recovery by some effective method, preferably by the liberation of formaldehyde gas. We sometimes find Boards of Health neglecting to enforce quarantine until epidemics have reached such magnitude that they are almost if not entirely beyond their control and drastic orders recall the negligence of the Board at the stage when the epidemic might have been prevented. You would think very little of a fire department which when notified that one house was on fire, or two houses, or six houses, would pay no attention, but when informed that the whole town was burning would then rush out their engines and try to control the conflagration. An average of one hundred and ten lives have been lost each year in burning buildings according to the statistics of the last ten years. In 1915 we had 4,065 deaths from typhoid fever, scarlet fever, diphtheria, measles, and whooping cough, all of which are preventable diseases. Your properties in your Boroughs are practically all insured against fire and fire losses are reimbursed, but who can reimburse you for the loss of a child? Few are provided with insurance that will repay to them money expended for medical attention and medicines or for money lost during the weeks that they are away from their regular employment.

Next to the enforcement of quarantine the Board of Health should pay attention to nuisances arising from improper disposal of sewage and garbage, overflowing privies and cesspools, and accumulations of decaying kitchen waste which become carriers of disease and breeding places for flies and create epidemics of disease where otherwise the outbreak might be confined to isolated cases.

Proper housing conditions are also important in the work of the local health authorities. Congested and insanitary conditions should be taken up and remedied but in order that these duties may be properly performed, the Board of Health should be composed of your very best citizens, men of good judgment whose opinions and advice will be respected in the community. Each Borough has its own conditions to meet, its own problems to solve, which require the exercise of good judgment, prudence, and often diplomacy. In public health matters as well as in anything else it is easier and more efficient to lead than to drive. In incompetent hands good laws may be improperly enforced and an entirely wrong impression created among the people as to the purpose and intention of the legislators and of the State.

It is very necessary that in the enforcement of quarantine laws there should be uniformity in all parts of the State. They should be administered in the same way by the municipalities in their jurisdiction and by the State Department of Health in the rural districts. Many objections to quarantine arise because of lack of uniformity. Boroughs may be surrounded by Second Class Townships in which the work is done by a Health Officer representing the State Department of Health. Citizens may be close neighbors and yet one family live within the borough limits and the other in the township. If quarantine restrictions are enforced for the one family which are not enforced for the other there is bound to be a remonstrance while there might be perfect satisfaction if both were treated alike. We hear no dissatisfaction to-day as to the requirements of the Game Laws, though they are so much less important than health laws, but if one neighbor were to find that another was permitted to hunt or fish and he was not, there would soon be vigorous protests.

The Department of Health is endeavoring properly and reasonably to enforce quarantine laws in the districts over which it has direct jurisdiction, and in those municipalities in which we are doing the public health work we are endeavoring to drill the local authorities in proper methods and to prepare and encourage them to organize an efficient Board of Health, and our work would be made much easier if the borough and city authorities would follow the regulations and practices of the Department of Health as they are required to do by the law.

We look with special interest to the work in the boroughs because so large a proportion of the people of the State are your citizens and because the larger the municipality grows—the greater the number of persons brought together in one place—the more important becomes public health work.

The earliest meaning of the word "Borough" seems to have been an assemblage of men who gave pledge to the king for the good behavior of themselves and of each other. This significance has by no means been lost. You are still a body of men who in consideration of your corporate rights have pledged the State to obey its laws. The natural evolution of a borough is to become a city. A number of the larger boroughs within the last several years have already been added to the list of third class cities and boroughs in which public health laws have been observed, as they pass on to their next municipal stage will become better, cleaner, richer, and more desirable cities and a greater credit to our great Commonwealth.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH.
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER.

No. 81. HARRISBURG, PA. MAY, 1916.

THE DEPARTMENT OF HEALTH LABORATORY AND WHAT IT HAS DONE FOR THE PHYSICIANS OF THE STATE.

Read before the Schuylkill County Medical Society at Pottsville, on April 4, 1916.

A modern clinical laboratory is now recognized as an absolute necessity to the physician who is practising medicine in the way it should be practised to-day, if he would give his patient the benefit of the most that he knows from the standpoint of diagnosis—which means in the end, the best treatment, for treatment without a correct diagnosis is at most, hit or miss. The laboratory now-a-days often determines definitely the etiological factor in a disease which, notwithstanding the ability of the physician, may baffle his skill as a clinician in so far that diagnosis of the case may be in doubt, while the laboratory findings taken in conjunction with the clinical data, may clear up the diagnosis absolutely.

In preventive medicine also, especially in threatened epidemics of intestinal diseases, the laboratory may be of incalculable value to the physician by pointing out to him the source of infection, this allowing its further progress to be thwarted.

Before the displacement of the old State Board by the Department of Health, whose chief executive is the Commissioner of Health, in the large cities and smaller municipalities of the State the physician practising within their borders, had access to modern laboratory facilities to help him in his work, but not so in the small towns and in the country. There, the country doctor, who is often as able a diagnostician as is his city brother and who wishes to be of as great service to his patients as does the city doctor to his, had been handicapped because he had either to do his own laboratory work or to send his pathological specimens to a private laboratory for examination. The former, the average busy practitioner, had not the time to do, being occupied as a rule from early morn till late at night in his rounds of ministration to the sick and afflicted; and the latter he oftentimes could do only at a financial loss to himself, which he could ill afford, but which nevertheless in numerous instances he made in order to give his patients—too poor though they were to pay the laboratory charge—the benefit of the fuller knowledge disclosed by laboratory examination.

When the Commissioner of Health was appointed under the act passed by the Legislature in 1905 creating the new Department of Health, he fully appreciated the need of a laboratory for the practitioner in the small towns and rural districts where examinations of all specimens having a bearing upon the recognition of transmissible disease could be made free of any charge except that of mailing the specimen. Other work, however, was more important, or at least more urgent, during the establishment of the department, and the development of a laboratory was delayed until a clearer knowledge of the demands to be made upon it could be gained. In the meantime the Commissioner cast about in search of a suitable place to locate this very needful arm in the fight for better health conditions in the State, a cause in which he had long since enlisted until the war should be over.

The University of Pennsylvania very graciously tendered to the Commissioner one of the large rooms and two of the smaller ones which adjoined it in the northwest wing of the new Medical Laboratories for use as the State Laboratory and from November 1906 until May 1911, amid these pleasant surroundings the work of the laboratory was performed. However, our work was increasing steadily and to such an extent that our quarters were rapidly becoming too limited for the amount which was required to be done, so that in the spring of 1911 the Laboratory took up its new home at the southwest corner of Twentieth and Arch streets, a large fourteen-room residence, which had been remodeled to accommodate itself to laboratory use, and there we have been located up to the present time.

It has always been the desire and aim of the Commissioner to bring the Department of Health and the private practitioner into close touch with each other with the realization that the more intimate the cooperation, the greater the good which will redound to the cause of the health of the people of the Commonwealth. The Laboratory is concerned very greatly in this cooperation. The Department sent out, at the time the Laboratory was first established, to every physician in the State, a booklet about the laboratory work, containing information as to what examinations would be made, and suggestions as to the time in the course of the disease and the manner in which specimens should be collected in order to obtain the most satisfactory results in the examination of them, and so on.

Another booklet of similar type, but with a number of additions, has only recently been published and distributed by the Department to every practitioner in the State. These booklets describe the outfits furnished by the Department for the collection of specimens and designate the most suitable one to be used for a given specimen for which a certain kind of examination is desired.

The scope of our work includes examinations of blood for the presence of pathogenic bacteria or animal parasites, the Widal test for typhoid and paratyphoid fever, and the Wassermann test for syphilis; examination of the sputum for tubercle bacilli and, if desired, pneumococci, streptococci, etc.; studies of urine and feces for general bacteriological purposes and special examinations for tubercle bacilli. The Diazo reaction is also made, if desired, though this is asked for now very infrequently.

Fluid exudates are examined for microorganisms of pathogenic nature.

Histological diagnosis of sections of new growths or morbid tissue are made and reported to the physician within a week or ten days of the receipt of the specimen. Bacteriolocal content, especially as regards the total number of bacteria in one cubic centimeter and a quantitative estimation of *B. coli* in samples of milk and water, is inquired into.

Swabs from cases of diphtheria are examined in order to secure release from quarantine before the expiration of three weeks from the date of occurrence of the disease, the usual period of quarantine.

For the past two years we have been making the Wassermann test in cases of suspected luetic disease. Last year over twenty-seven hundred specimens for this reaction were received and reported upon.

In the course of our work, we produce for the use of the State Tuberculosis Dispensaries and Sanatoria, two products of the tubercle bacillus. One is a saline extract made by dissolving out much of the wax, fats, and fatty acids of the bacilli in ether, pipetting off these fats and waxes in solution, drying the bacilli and adding thereto five times their weight of physiological salt solution, shaking eight hours in a shaking machine and allowing the extraction to continue in the ice box for the remainder of the twenty-four hours. This is then filtered through a Berkefeldt filter thrice, the filtrate being known as Tubercle Bacilli Extract or "Fluid of Dixon," and from this stock solution are made the desired dilutions for administration to tuberculous patients. The other, known as our Suspension of Dead Tubercle Bacilli, is made by killing eight to ten weeks old veal glycerin bouillon cultures of the tubercle bacillus, filtering off through paper the bacillary bodies and drying them. These bodies are then placed in a Soxhlet apparatus and the fats and waxes are extracted by means of ether for about one hundred and sixty-eight hours or until the ether running back into the flask after lying on the bacilli till the apparatus is full, is clear. The bacilli are then removed from the filter thimble, ground in a mortar, and weighed, and from this is made a stock suspension in a saline solution of 0.85 per cent so that one cubic centimeter is equivalent to one milligram of the bacilli. From this stock, dilutions, of which there are sixteen strengths, are made for use in treatment. Dispensaries and sanatoria used over twenty-two thousand syringes of these various products of tubercle bacilli last year.

In our routine examination of specimens, in order that they may be secured in as uniform and satisfactory a manner as possible and that the physician may not be put to any great inconvenience and trouble in getting together a suitable container for the transmission of his specimen to the Laboratory, the Department has provided several different kinds of outfits which are supplied free of charge upon application of the physician to the Division of Supplies of the Department at Harrisburg.

Outfit No. One consists of a small box with slots for two glass slides which are contained therein and a sterile needle for pricking the finger or ear lobe. This outfit may be used by the physicians in sending blood smears, smears of pus for examination for gonococci, fluid from syphilitic lesions to determine the presence of the *Treponema pallidum*, etc.

Outfit No. Two consists of a small wooden box containing a small glass bulb and a sterile needle for obtaining specimens of blood for agglutination tests as for example, the Widal reaction in typhoid fever. We have found that agglutination tests made with the serum of the blood such as has separated from the whole blood after it has been taken into the bulb, are much more satisfactory, inasmuch as they give a greater percentage of positive reactions than those made from drops of dried blood.

Outfit No. Three consists of a double cardboard cylindrical container within which is placed a vial of heavy glass without shoulder for the reception of the specimen. A cork secures the neck of the vial, For sputum specimens these vials contain a few drops of five per cent solution of phenol. Aside from their use as sputum containers, these outfits may be used for the transmission of specimens of pus, fluid exudate, urine, feces, sections of morbid growths or tissue. When used for anything other than sputum, the physician is advised to throw out the carbolic acid and boil the cork and vial for ten minutes before placing the specimen therein, otherwise it will be impossible to isolate the microorganism suspected of causing the disease.

Outfit No. Four is our Water Sampling Oufit—consisting of a pine box, fifteen inches by nine by seven, with hinged lid, an iron handle on top and a hasp and staple for locking. Fitting into this wooden box is one made of tin containing three longitudinal compartments, the middle compartment being divided into six smaller ones for the reception of six four-ounce glass stoppered bottles in which the samples are collected. The stopper and neck of each bottle is capped with a piece of unbleacher muslin tied with a string around the neck. The bottle, stopper, and muslin cap are sterilized by means of dry heat before being put into the sampling case. The other two longitudinal compartments in the tin box, on each side of the one used for holding the bottles, are filled with ice in order to keep the water samples cold during their shipment to the Laboratory. Full directions on a printed slip as to the manner of collecting a sample, and small tags for designating the source of each sample, accompany each water sampling outfit.

Recently we have distributed outfits for the collection of specimens of blood for making the Wassermann test. This consists of a little wooden box with sliding lid containing a small sterile test tube closed with a cork, and a sterile needle for pricking the finger tip or ear lobe. The directions state that the tube must be at least two-thirds filled with blood in order that there may be sufficient serum to make the test. This means from two to two and a half cubic centimeters of blood so that we may have at least one cubic centimeter of serum with which to work.

An identification slip is included in outfits One, Two and Three, and the Wassermann outfit, with blank spaces for the name of the physician, name of patient, nature of specimen, how and when taken. With each of these outfits is sent a Request Card for Pathological Examination. This must be filled out by the physician with his own name and address, patient's name, age, address, occupation, conjugal condition, and disease suspected. The physician is urged to give brief clinical data of the case in the space reserved for "Remarks." This card is sent to the Laboratory in a separate printed envelope, supplied by the Department. The identification slip in the outfit and the Request Card received by first class mail in a separate envelope must match absolutely before an examination will be made.

We solicit information especially concerning the clinical history of patients from whom specimens of pathological tissue are sent for histological examination, but it is very rare indeed that we receive any clinical data bearing upon the pathology of the case, very many physicians not even noting the site from which the tissue was removed, unless a special letter of inquiry is sent requesting such data.

Such letters are written to the physicians of the State almost daily, in order that we may give a laboratory diagnosis which will be of the greatest service to them. I think it is generally agreed that the clinical and pathological conditions in a case are so closely interrelated that an understanding of the one has much to do with a full and correct understanding of the other, and until this is appreciated both by the laboratory man and the practising physician, neither can measure up to the highest standard of mutual helpfulness.

There is one other thing of which I wish to speak in regard to the sending in of specimens of diseased tissue—not in a spirit of complaint, but that the laboratory of the Department may be of more helpful service to the Pennsylvania Doctor, in aiding him in making the most accurate diagnosis of his case possible—and that is, that in sending a specimen of tissue, he make sure of its being received at the *Laboratory* in a well preserved condition. This he may do by covering the specimen, as soon as it is excised and a selected portion placed in the bottle, with either a four per cent. solution of formaldehyde or a fifty per cent. pure grain alcohol. This will insure its being kept in a good state of preservation during its journey to the Laboratory.

Numberless times we have seen specimens for histological examination arrive on a hot day simply wrapped in surgical gauze or in a bottle without any preservative, so decomposed that when the container was opened the stench would be so great that it could hardly be tolerated long enough to wash the specimen and prepare it for hardening and cutting. Of course, such specimens show so much degeneration from extraneous causes that the true condition of affairs in the body at the time of the taking of the specimen is veiled, the pathological diagnosis is of little value to the physician, and a specimen, which oftentimes cannot be duplicated, is ruined simply through the thoughtlessness of the doctor who sent it.

When a specimen is received at the Laboratory, the identification card accompanying it is matched with the Request Card, which has usually arrived before the specimen, a laboratory number and series number given it, and the examination is made as soon as possible after its receipt. Reports on all specimens such as sputum for tubercle bacilli, Widals, blood and pus smears, etc., reguiring only a microscopical examination, are sent out in the afternoon of the day they are received. Incubated cultures of suspected diphtheria organisms require twenty-four hours before a report may be had. Reports on bacterial isolations may be had in general in from a week to ten days or two weeks.

Reports of histological examinations are gotten out usually within a week.

Wassermann tests are made twice a week only, viz: Tuesdays and Fridays.

If a negative report as to the presence of a suspected microorganism is received, the practitioner should not allow one report to settle the question, but should send in at least two more specimens from the same case for examination before concluding that the bacteria suspected by him as the cause of the disease, are absent.

Our idea of good service to the physician of the State is to give him his report as quickly as is consistent with a thorough examination of the specimen.

A comparison of the total number of specimens for the years 1907-1915 inclusive will give a concrete idea of the appreciation in which the Laboratory is held by the physicians of our Commonwealth.

The figures show a very striking increase in the number of specimens sent in for examination. The change is not uniform, nor should it be expected to be, since it is affected each year by the occurrence of epidemics and other localized conditions.

The total annual number of specimens runs as follows:—

In 1907	4,375
In 1908	9,065
In 1909	16,156
In 1910,	15,654
In 1911	15,418
In 1912	16,431
In 1913	17,031
In 1914	17,206
In 1915	23,617

making a grand total for the nine years of 134,953 specimens. Deducting from this number one-half of the total number of sputum specimens—for about this proportion of the whole number was sent in by the physicians connected with the one hundred and sixteen tuberculosis dispensaries maintained in all parts of the State by the Department of Health—28,400, and about two-thirds of the total number of water samples sent in by Health Officers under the direction of the Commissioner—37,033—we have a total of 69,520 specimens sent in by the physicians of the State within the past nine years.

This is an indication of what the State Department of Health in its Laboratory has done and continues to do for the Physicians of Pennsylvania.

The aim of the State Laboratory is to give as great a service to the practising physician as possible and to make him feel that this is his Laboratory. We trust that the great amount of usefulness accruing to physicians of the State from the work thus far done by the State Laboratory, as evidenced by the large number of specimens sent in by them and by the many letters of commendation and appreciation which we have received, is but one of the innermost ripples of an everexpanding wave-train of helpfulness which will spread and spread, until every physician in this great Commonwealth of ours is made to feel that for determining the etiology in the causation of disease, as an aid to diagnosis and treatment, the facilities of the Laboratory of the State Department of Health are at his disposal at any time and as often as he desires to make use of them.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev. Apr.,	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., COMMISSIO

No. 82. HARRISBURG, PA. JUNE, 1916

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public, has been kept in mind in this presentation.

COLDS.

A cold is the most common transmissible disease. It is by no means an ailment of the winter season alone, although conditions at that time favor it.

Colds are caused by certain bacteria which find their way to the mucous membrane and cause an active inflammation. Most often the throat and nasal passages are affected.

The coughing, sneezing and accompanying discharges are symptoms familiar to everyone. It is particularly important to observe cleanliness in order to avoid transmitting the infection to others. Sterilized cheese cloth, which can be burned, is an excellent substitute for the handkerchief.

One is particularly liable to contract a cold when exhausted and in the winter time crowded, overheated, poorly ventilated rooms and cars make the tired worker susceptible. Overeating and the use of stimulants are often predisposing causes.

Excess of clothing, contrary to popular belief, is not a preventive. Indeed, chest protectors or similar articles of clothing may weaken the natural resistance. General care of the body, daily baths to keep the skin healthy, fresh air—both day and night— and the avoidance of fatigue, are the best preventives.

The complications which are apt to follow a severe cold, especially pneumonia, make it important to watch for aggravated symptoms. If these manifest themselves a physician should be called promptly. A lingering cold may result in tuberculosis, by clogging the respiratory tract with secretions and thus furnishing a food supply for tuberculosis germs.

FRESH AIR AND ILL TEMPER.

Half the ill temper in the world is the result of poor ventilation. Think of your own case. Let the office or the house or the school room become close and "stuffy" and immediately there follows a feeling of depression. As the lungs are denied fresh air, the blood is deprived of oxygen, the purifying agency, the nerve centers are depressed in their turn and we suddenly find ourselves in irritable, peevish humor, without apparent explanation for it. Ask any teacher—"Which is the most trying time of the day?" and she will tell you "The last hour."

Which hours are hardest at the office?—the last ones, of course. Not necessarily because they mean the culmination of the day's efforts, but because the windows have been kept down and the steam turned on until the air has become hot, dry and parched. Then follows, in due turn, this depression and with it irritability. People whose occupations keep them out of doors are more even tempered and genial, as a class, than "shut-ins."

In industries of all sorts there is constant striving for scientific efficiency. It would be well for employers, and also for employees if a proper system of ventilation were made sure of wherever any considerable number of people are at work. Without a supply of fresh air it is impossible to bring about the maximum physical efficiency of the individual worker. So much for the work shops.

The condition in our homes are equally worth watching. Many a housewife who feels nervously exhausted would find that a few minutes exercise in fresh air would prevent a nervous headache. A temperature of 65 degrees Fahrenheit where the air is fresh,—is far healthier and more acceptable to the normal young or middle aged individual than a temperature of 70 or more degrees in a vitiated atmosphere.

As a preventive, fresh air is of the greatest value.

Overheated, ill-ventilated rooms, offices, cars, etc., are predisposing agencies to both colds and pneumonia.

CLEAN HANDS.

Keep your hands clean! It is not without reason that the expression "His hands are clean" has grown to be a synonym for moral as well as physical cleanliness.

The hands are the parts of our body most frequently in contact with infected and unclean materials. Unless precautions are observed until they become habit, this contact will lead to the conveying of disease germs to the mouth, either directly or by the handling of food or of anything put into the mouth.

Always keep soap and a good stiff bristle brush conveniently at hand and make it a rule to wash your hands thoroughly before each meal, before preparing food or serving it, after the necessary toilet attentions and after attentions to the sick or the handling of articles in a sick room.

It is a common thing to find secondary cases of typhoid fever and other diseases which have resulted from failure to observe the latter precaution. If the nurse must act as cook, some disinfectant,—such as a 2 per cent. carbolic solution,— should be used and the hands should be thoroughly scrubbed with plenty of soap and warm water. The nails should receive particular attention.

Washing the hands is one of the simplest yet one of the most important of the precautions which one can take to avoid disease.

MINOR ILLS vs INDIVIDUAL EFFICIENCY.

A wag once said that "Corns cause more real pain in the world than cancer." This is jesting about a serious subject and yet, after all, there is an element of truth behind the jest. There has been a deal of talk about efficiency, conservation and kindred topics, and reams of figures have been published to show leaks in our national economics. These are all very well but the question which most interests every man and woman is how to get the maximum of work and play into each twenty-four hours.

It is almost impossible to overestimate the effect of little things upon our everyday affairs. Suppose Mr. Humdrum Business-man comes home to dinner tired and finds his favorite dish on the table. He overeats; the weather is cold and he goes to bed in a warm room, remarking that open windows are all right for fresh air fiends, but not for him. In the morning he gets up with a headache and a general "stuffy" sensation. If breakfast is five minutes late he kicks the cat, spanks the baby, quarrels with his wife and starts for the office in a fair way to be at odds with himself and a trial to his associates for the balance of the working day.

The worst feature of ill temper is that it is more contagious than any known infection. It can be carried a thousand miles over the telephone wire to estrange a firm's best customer or find its way into a letter and take the enthusiasm and snap out of a good salesman for a week.

Who would venture to estimate the business loss in the course of a year, resulting from the ill tempered indifference of clerks and salespeople, caused by little ailments which upset their equanimity? One of the largest department stores in Philadelphia has placed chiropodists in the employees' rest rooms and the employees are being taught to ask immediate attention to any little discomfort which their feet may cause them.

Almost daily you hear someone say "Oh, when I have a doctor you may know that I am really sick,"—and he seems to take a foolish pride in the statement, as if it argued physical endurance and mental stamina quite out of the ordinary. It is the little leak in the dike that eventually lets in the roaring flood and holding a fifteen minutes chat with a doctor now and then, when suffering from some little disturbance, is better than being the subject of a serious consultation later. By according a reasonable amount of attention to little ills,—refraining betimes from making them subjects of conversation,—we give our physical machinery its just due. As a result we should be more agreeable associates for our families and friends and more efficient workers in the business or social world.

FAKE CURES AND FOOLISH PEOPLE.

We continually read of the gullible individuals who invest their money in all manner of "get-rich-quick" schemes. These poor dupes are the laughing stock of sensible men and women, who wonder how they can be misled by the exaggerated promises of fake promoters.

For every individual who invests with these unscrupulous financial sharks there are a dozen people, equally gullible, who throw away money and risk health and happiness by investing in fake cures. A man may lose his money and be none the worse for it in the long run,—if he profit by his experience,—but the use of consumption cures, soothing syrups, spring tonics and cure-alls of every description, is fraught with genuine danger.

Often-times these quack remedies contain habit-forming drugs. The ailing men and women who trust to them and who delay consulting with experienced physicians, are trifling with their most precious possession—health.

Physicians of professional standing do not advertise. Any man who claims in print,—or elsewhere,—that he has an unfailing cure for the ills of humanity should be regarded with the utmost suspicion.

Traveling quacks,—advertising under their own names or as "medical institutes,"—should be strictly avoided. They prey upon the weak and ailing. The majority of their advertisements begin with extravagant promises of free treatment, but in the end they usually succeed in fleecing from their patients far more than the fees of a regular physician. Ninety-nine times out of a hundred the poor patients are worse off than they were in the beginning. All too often there is a tragic ending.

Medical ethics require physicians to give to the world freely all discoveries which may benefit humanity. This practice is rigidly followed by all physicians of professional standing. The established physician, as well as the established merchant, depends for his livelihood upon his reputation for fair dealing and his ability as a practitioner.

TOOTH TALK.

The African savages, who polish their teeth to ivory whiteness with the chewed ends of sticks, may be woefully deficient in many ways, but in their extremely careful observance of this hygienic rite they serve as examples to many civilized people.

The proper care of the teeth is quite as essential to the well being of the body as the unceasing vigilance of sentries is to a beleaguered army. The mouth gives access to infection. Unless the teeth are kept clean they will become infected and decay.

Tiny particles of decomposed food remain between the teeth and create an ideal breeding ground for germs. When this condition exists, these pernicious little enemies find their way into the blood through which they circulate to all parts of the body.

They likewise promote the decay of the teeth, which means the breaking down of an essential part of our physical machinery. Proper mastication of food is essential to good digestion and broken, ill-kept incisors, bicuspids and molars do not make satisfactory cutting and grinding machines. As a result, unfair demands are made upon the digestive system and trouble is apt to ensue.

With dentistry in its present high state of development, there can be but one excuse advanced for rotting, ill-kept teeth,—carelessness.

Begin with the children at an early age, and teach them to clean the teeth thoroughly at least twice a day, morning and evening. Do not excuse neglect in the care of children's teeth by the fact that the first or temporary teeth will be replaced by others. Their present health, the prevention of decay and its accompanying pain, and the formation of the essential habit of cleanliness in these early years make the care of childrens' teeth a matter of the utmost importance.

This care is equally essential to the health of adults. Numerous serious ailments can be traced directly to bad teeth. There is another distinct advantage to be derived from proper tooth care. How cheerful an introduction is the smile which displays a row of sound teeth! It seems to bespeak cleanliness, healthfulness and self-respect.

WALKING.

Nature intended the human animal to walk.

From the dawn of History until a century ago walking was the chief method of locomotion for the majority of mankind. Among the multifarious inventions of the last century were included more new methods for the transportation of man than were recorded in the previous history of the human race.

The speed with which we can be whisked about on trains and trolley cars is the thing which has made possible our great cities. To their perfection we owe much that is beneficial and some things which are not so. Among the evils is the fact that we are forgetting how to walk. How often have you heard people say, "Our new house is most convenient—just half a block from the trolley," or "You know we are right at the elevated station?" Office and apartment buildings with elevator service are most in demand.

Walking has come to be looked upon as a burdensome waste of time, by the majority of people. A European traveler, when asked what most impressed him in this country, said, "The fact that your laborers ride to and from work."

No one seems to walk if it is possible to ride. The trolley, railway and auto serve the majority of us in the place of legs. What is the result?

Thousands of business men and women, day in and day out, go with but a fraction of the physical exercise which Nature intended. The easiest and most natural of all exercises is neglected and is often looked upon as a positive hardship. Is it surprising that our statistics show a remarkable increase in the number of deaths from Bright's disease and kindred ailments resulting from over-eating and under-exercise?

Walk to and from work whenever possible and save both doctor bills and car fare. You need not fear overdoing this rational exercise and its steady practice will improve your digestion, insure more restful sleep and aid in increasing your resistance to disease.

FATIGUE.

Everybody has been exposed many times to contagious diseases which he has not contracted.

This has not been due to the fact that the contagious principle was less virulent than usual but to the natural resistance of the individual. This natural resistance to disease is usually proportioned to the physical well-being of the individual.

Avoid fatigue. All too often it is the forerunner of disease. When one has indulged in unusual physical or mental exertion and has become tired, physical resistance is greatly reduced and the susceptibility to disease is increased proportionately.

One of the most common abuses to which we subject ourselves is that of eating when fatigued. For domestic convenience it is necessary to have meals at stated hours. In the evening men and women go home exhausted, after their days work. In the majority of instances they have made the trip in an ill ventilated train or trolley car, thus adding to their depression. They arrive just in time to sit down to the table. Regardless of their exhausted condition they consume a quantity of food.

Their nervous systems are so affected, as a result, that digestive processes practically cease and the food consumed remains for hours in an undigested condition, causing great physical discomfort and sometimes serious complications. Food taken when one is excessively tired provides little nourishment. It is much better to go hungry and avoid indigestion.

When one is exhausted a few moments of absolute repose will work wonders. It gives the nervous system a chance to recover its poise and the necessary impulses are then sent out to the digestive apparatus from the nerve centers in the brain.

THE QUICK LUNCH.

In every town and village you may behold the words "QUICK LUNCH" staring at you in the day time and emblazoned in electric lights at night.

The Quick Lunch is distinctly an American institution and one of which we have no reason to be excessively proud. The German, the Englishman or the Frenchman regards the American habit of consuming food,—as if in a perpetual race against time,—as a barbarous custom.

As eating is essential to living, it is well to consider it an action deserving of attention and not to treat the stomach's demand as an impertinent request to be curtly answered. If the mind is concentrated upon business or other matters, the digestion suffers. Devote your attention during meals to gratifying your palate by the flavor of the food eaten. This gives a decided stimulus to digestion. Excessive sweetening, or the use of condiments, is too often expected to compensate for the lack of true flavor or to disguise the unappetizing condition of the food served.

The comparatively limited list of viands customarily available in these temples of indigestion, seem, for the most part, to be chosen with one primary purpose in view—their speedy consumption. Pastries or fried foods seem to be chiefly in demand. During the summer they are generally washed down with ice water or some other liquid cold enough to paralyze digestion.

For the average worker the period between the morning and the evening meal is from ten to eleven hours. The body needs nourishment in this interval to maintain physical or mental activity. Pastries contain but a small percentage of nutriment. Coffee and tea are stimulants, pure and simple. Fried food may almost be considered a national menace.

When you go to lunch take YOUR time to eat. Heed not the roar of the hungry multitude around you and let the harried waiters leave you undisturbed. The profit of the proprietor depends on the quickness with which you consume your lunch and make way for another customer. You will profit individually by taking a reasonable length of time to enjoy your food and to stimulate the digestive glands.

NEEDLESS NOISES.

All city dwellers suffer from the harsh, unnecessary noises which have come to be the inevitable accompaniments of life in a metropolis.

In nature the noises are seldom discordant. The whisper of the wind through the trees, the swish of the waves on the shore, the chirping of insects and the songs of birds all are harmonious.

Contrasted with these, the roaring of trains, the clanging of trolley cars, the rattle of vehicles over stone pavements and the honk of automobiles, are violently discordant.

We accustom ourselves to these sounds to a great degree. Through concenration of mind we learn to work amid the clatter of machines and the babble of voices. Despite this acquired ability however, the continued effect of discordant sounds upon the nervous system is injurious.

Let even a trifling illness occur and these discords become almost unbearable. It is impossible to carry on the activities of a great city without some accompanying noises, but a large number of those which exhaust our nerve force are unnecessary.

In one of our large cities a "Society for the Suppression of Needless Noises" has accomplished much genuine good by securing a quiet zone about hospitals and schools and by reducing the shrieking of whistles and similar noises.

An effort toward the elimination of unnecessary noise in the conduct of our daily business would doubtless be repaid in many instances by additional concentration and efficiency of employes.

GARDENS.

Plant a Garden.

Some of the world's geatest thinkers have found diversion and inspiration in their gardens. If your control of agricultural space is limited to a twenty foot back yard do not be discouraged. It is even possible to transform an unattractive flat roof into a garden. The possibilities of exercise and profit to be derived from the cultivation of even a small plot, are greater than one might think.

The spade, the hoe and the rake provide exercise equivalent to many of the gymnastic exercises, which most people concede to be beneficial and few people take. In addition to the advantage derived from exercise in the open air, it is a keen satisfaction to the vast majority of men and women to see things that they have cultivated, grow and mature.

The practical benefits derived from the tillage of a little garden usually exceed the aesthetic benefits, but in the hurly-burly of every day life we perhaps weigh too lightly our opportunities for the cultivation and appreciation of the beautiful. It is difficult to tell how far reaching the effect of some slight effort at beautification may be.

Years ago a way-station agent of a railroad traversing the plains of the Canadian North West, sent back home for a few packages of flower seed and with such time as he could spare transformed the surroundings of his mean little one room station. Sir Thomas Shaughnessy, president of the road, was making a tour of inspection and when he reached this little garden spot in the then uncultivated wastes, he asked to see the boy and learned from him the story of his garden. As a result, the next year all agents of this road,—which stretches from the Atlantic to the Pacific—received packages of seeds and instructions to plant flowers around every station. The custom then begun has ever since continued.

The cultivation of twenty feet or more of back yard may not result in anything of this sort, but it should prove a healthful, restful, and profitable diversion for the busy man or woman, after the labors of the day.

WATER DRINKING.

Civilized man throughout the world has learned the necessity of eating at fixed times of the day and has arranged his daily life accordingly, with some variety of frequency and interval.

He does not, however, seem to appreciate the fact that to maintain health it is an equally essential thing to drink freely of pure water. The medical profession and all physicians in active practice realize that there is an insufficiency of water drunk by the majority of men and women. Water is needed to promote the working of organs of digestion and for the requirements of circulation. It is needed to replace the water that the body constantly loses through the skin and lungs, as well as through the kidneys.

It is no less needed to help in the solution and removal of various substances which form in the body and are harmful if allowed to remain long in concentrated form. To satisfy these demands a healthy man or woman should drink a pint of pure water, at a temperature of about 60 degrees, upon awakening in the morning; another pint an hour before the midday meal; a pint before the last meal of the day and still another before retiring for the night—provided it is at least three hours after eating.

Flooding the stomach with water, at meals, is most injurious. Ice water in quantity is highly irritating to the mucous membrane of the stomach. When taken with meals it often arrests the working of the digestive glands and causes an acute indigestion,—frequently of serious consequence to the delicate and aged.

The habit of drinking water should be quite as regular as that of eating. Liquid foods and various beverages will take the place of pure water to a very limited extent only. Babies need and are apt to suffer from the want of water, given at regular intervals.

Finally, it is worth while to remember that the free drinking of water is one of the greatest deterrents to the abuse of alcohol.

THE FACTOR OF SAFETY.

The Engineer who plans a bridge or a skyscraper makes his calculations, based upon the strength of the steel; then he adds the factor of safety. After considering the determined breaking strain, which his materials will stand, he generally multiplies this material by three, for additional security.

In the physical structure of our bodies there is included a factor of safety. Under all the ordinary conditions of life this margin protects us. It takes care of the strains incidental to the rational existence for which the Creator evidently intended us.

When the body is exhausted by over-work and underfeeding or by dissipation and excesses, this factor of saftey is so reduced that it fails to protect and we become easy victims to communicable or organic diseases.

While modern conditions of living make exceptional demands upon us these demands are more than offset by the improvement in modern living conditions. Statistics prove that the average span of human life is being gradually lengthened. The thing which we should guard against is excessive and irrational indulgence. Ordinarily, intelligence is a sufficient guide, if we permit it to govern us. Seldom do we presume upon and over-tax our strength without being aware of the fact.

Be temperate and the factor of safety will carry you through the exacting demands of your every-day work.

DEEP BREATHING.

We are all familiar with the sense of exhilaration which follows a deep inhalation of cool, fresh air. Our lungs respond to the stimulus much as the body re-acts from the dash of a cold shower bath.

When we studied physiology in school we were taught that the blood is purified in the lungs—washed, so to speak—the impurities removed and oxygen supplied.

If this purification of the blood is to be done properly we must have pure air to breathe and must take advantage of all of our available lung capacity.

A slouching carriage when walking, or a stoop shouldered posture when sitting, contracts the chest and seriously interferes with proper breathing. Avoid acquiring a stoop if your daily occupation is such that you must work at a desk or sewing machine. Stooping is responsible for faulty circulation of the blood and for other evils besides impaired breathing.

Remember that your blood cannot be properly "washed" with half a lungful of air any more than you can take a proper bath in a few pints of water. Learn to sit straight and breathe deep. Twice a day,—morning and evening,— practice breathing exercises. Fill your lungs slowly and to their utmost capacity and then slowly empty them.

Many puny children have been developed into strong, vigorous men and women through breathing exercises and physical culture.

One of the most effective barriers to consumption is a well developed pair of lungs.

DANGEROUS WELLS AND SPRINGS.

It is indeed a modest property owner who will not boast of his well. The coolness, clearness and general excellence of their water supplies is a favorite topic of conversation with thousands of people.

One half of our eight million Pennsylvanians depend upon wells or springs for their water supply and for the four or five summer months the other half of our citizens,—on vacation trips or half holidays in the country,—will depend upon water from these sources.

When investigations have been made by sanitary experts the water of many of these wells and springs has shown pollution, time and again. This means that it is positively dangerous for human consumption. Unfortunately, water may appear clear and be agreeable in taste when it contains sewage organisms which may cause typhoid fever or dysentery when taken into the system. Much of our rural typhoid is due to polluted wells and springs.

No well should be located near a cesspool, privy or barnyard where the drainage from one of these places, by seepage through the water bearing strata, can reach it directly or indirectly. In a limestone country there is particular danger that sewage or animal wastes may find their way through fissures in the rock and may re-appear many miles away in some subterranean stream which serves as a water supply.

Open wells are particularly liable to pollution and all wells should be carefully walled and covered to prevent them from direct drainage contamination. The close proximity of possible sources of pollution should be sufficient cause to place any well or spring under suspicion.

Unfortunately, many property owners who strive to keep their houses and grounds in a clean, sanitary condition—overlook this vital factor.

The cost of a water-tight stone or cement covering, which will deflect drainage from the well, or the sinking of a new well in a safe locality is vastly less than the possible cost of a single case of typhoid.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March.	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

No. 83 HARRISBURG, PA. JULY, 1916

Entered as second-class matter August 9, 1909, at the post-office at Harrisburg, Pa., under the Act of July 16, 1894.

PUBLISHED MONTHLY BY
THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D.,
COMMISSIONER.

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE.

1. The Eyes.
2. Temper and Children.
3. The House in Summer Time.
4. Unprofitable Entertainment.
5. Hot Weather Maxims.
6. The Fatal Fourth.
7. The Value of Play.
8. Breeding Flies at Home.
9. Temper vs. Temperance.
10. Bathing in Polluted Waters.
11. Solitary Confinement.
12. Dust.
13. All is Not Gold that Glitters.
14. Meat Eating.
15. The Eleventh Hour.

HARRISBURG, PA.:
WM. STANLEY RAY, STATE PRINTER
1917

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public, has been kept in mind in this presentation.

THE EYES

Sight is generally considered the most precious of the five senses,—yet few people make special effort to take care of their eyes.

In order to keep the eyes sound, it is necessary to keep them free from infection and to avoid straining them by over-work.

It is an almost universal habit to wipe the eyes with a pocket handkerchief. As a rule this handkerchief is not absolutely clean. As a result of its numerous uses, it contains germs which are likely, if introduced into the eye, to cause more or less serious infection. When suffering from a cold one should be particularly careful in this matter.

Rubbing the eyes with the unwashed hands, or using towels which others have used, may also result in disease of the eyes.

When the eyes feel hot and dry the outside of the lids should be bathed with cold water. Unless prescribed and administered under the direction of a physician, eye lotions or washes should be avoided.

To avoid straining the eyes, a person of normal vision should hold the book fifteen or eighteen inches from the face and on a direct line with the eyes. Never hold a book low while reading. The strain on the eyes is much greater when the book is held in the lap. If you make a practice of reading while lying down you should be careful to hold your book at the proper angle.

Always read by a good light, avoiding glare or reflection from the printed page. If the light is poor you will almost certainly hold your book too close to the eyes. Books printed in fine type should be avoided, as they cause an unnecessary strain of the vision.

Defects of sight are often responsible for headaches and extreme nervousness. One who wears glasses should have an occasional eye examination by an occulist, to insure himself against changes in the vision and consequent eye strain.

TEMPER AND CHILDREN

"Our bodies are our gardens, to which our wills are gardeners."

Physical, mental and moral health depend upon self control and its cultivation in children is of greater importance than that of any other single virtue.

Who has not observed the disciplinary efforts of parents with a feeling that he could improve upon the methods employed and the results obtained?

The casual observer usually decides that parents are more often to blame for the faults of their offspring than are the children themselves. "Like begets like" and absence of self control in the father and mother is almost certain to be reflected in the child.

In children of high strung and nervous temperament a display of passion and the loss of self control are to be expected. To teach a child to govern and to control these gusts of temper is a task worthy of the most careful, persistent and kindly effort.

To permit a child to give way to passion during the early years of its life is apt, in the end, to bring about nervous or mental breakdown,—when the strain of the real burdens of life is added in later years.

All students of nervous diseases are aware of the possibilities of inheritance, by a child, of mental defects present in the parents. No one factor is of greater aid in equipping a child to battle with hereditary tendencies of this character than education in self control. It is of the greatest aid in the establishment of mental equilibrium and in the maintenance of a sane poise. Knowledge, morality and a healthy, temperate physical existence are the fruits derived from the cultivation of this virtue.

THE HOUSE IN SUMMER TIME

When our remote forefathers lived in caves and trees their household goods were limited to the favorite club, a stone ax and a few skins.

The question of cleanliness was a matter of as little consideration as the question of ventilation. Both of these matters, in fact, took care of themselves.

In the thousands of succeeding years, with increasing intelligence has come added accumulation of household goods. Nowadays the poorest individual among us would find it difficult to load his belongings on his back and move when the fancy struck him.

At times, the stuffiness and over-furnished feeling of our modern places of abode remind us of some of the advantages which the prehistoric mode of life presented.

For the sake of comfort, coolness and cleanliness in summer,—dispose of your heavy curtains, thick carpets and other unseasonable furnishings. During the summer season the windows are open and more or less dust is sure to enter the house.

The elimination of unnecessary furniture from over-crowded rooms, gives an agreeable feeling of space and makes houses less difficult to keep clean and more sanitary and comfortable.

A porch in summer time is one of the most useful and enjoyable additions possible to a house. As a safe playroom for the baby, a cool and comfortable rest or workroom for the housewife, or a sleeping room at night, it adds to the health and comfort of the entire family.

UNPROFITABLE ENTERTAINMENT

The most popular form of entertainment of the present day is the moving picture.

Tens of thousands of our citizens attend the popular priced moving picture theatres daily. That this economical form of entertainment has come to stay—until supplanted by some equally reasonable and enjoyable substitute—is a proposition scarcely open to argument.

The value of some inexpensive form of amusement for the tired worker is obvious, but there are certain conditions which the purveyor of such entertainment owes to his patrons, which they in turn should demand.

Proper ventilation and cleanliness ought to be given without the asking and when they are not provided they should be demanded and their giving should be compelled. The shocking accidents which have brought the public to realization of the necessity for adequate protection from fire in places of amusement, taught their lessons at the price of many lives. The crowding of hundreds of people into improvised auditoriums which are stuffy, overheated and ill ventilated, has no doubt exacted a high death toll from pneumonia and other infectious diseases.

In the early days of these enterprises, when there was uncertainty as to the lasting popularity of this class of entertainment it might have worked hardship to proprietors to demand too much. Under present conditions however, when a great mass of the people are supporting these theatres, the protection of their patrons' health is an essential duty.

The working man or woman who seeks relaxation after a day's toil will not secure full benefit if shut in a crowded, ill-smelling, badly ventilated auditorium. His pleasure will be lessened, though he may be unaware of the fact. He is being deprived of the full measure of his recreation.

The people themselves hold the remedy largely within their own hands.

Use your influence to aid the health authorities in their effort to improve housing conditions. If you are a patron of the "movies" seek those places where the proprietor has provided proper ventilation and cleanliness. Avoid those with close, ill-smelling or artificially scented atmospheres—lest you pay the exorbitant price of headaches, colds and pneumonia.

HOT WEATHER MAXIMS

"Overcome by the heat." This will be a frequent headline in the papers for the next three months.

In the minds of the majority of people, all ills resulting from excessive heat are grouped under one head. As a matter of fact, there are two distinct types of ailment from this cause,—heat stroke (or thermic fever) and heat exhaustion. In the first of these types the patient usually develops a high temperature and the proper treatment calls for ice baths or the external application of ice. In the second type of cases, "heat exhaustion," the heart action and respiration are depressed. When the humidity is high, over-exertion is more apt to cause heat exhaustion than heat stroke.

In extremely hot weather endeavor to secure some circulation of air in the dwelling and workroom. There is less likelihood of prostration when the air is in motion.

No time should be lost in securing the services of a physician when one is overcome by the heat. No layman is competent to distinguish between the two types mentioned or to give the required treatment.

With the advent of the summer months it is well to fix these few maxims in mind.

Don't hurry—Remember that it was the tortoise that won the race.

Don't worry—For your sake and the other fellow's sake.

Eat regularly but sparingly—Even an ortrich should use some discretion in hot weather.

Avoid alcoholic beverages—If you must use alcohol burn it under a chafing dish.

Avoid ice water and ice-cold beverages—It is particularly dangerous to paralyze your stomach while the thermometer is on the rampage.

THE FATAL FOURTH

Thousands of small boys have been practicing unwonted thrift for days past in order that they may express their patriotism by a prodigal expenditure of their hoarded money on July Fourth.

The State Department of Health has also been making its preparations by ordering a special supply of tetanus antitoxin, in the effort to prevent cases of lock-jaw among these same small boys.

There are a great many grown-ups too, who believe that their sons and neighbors should be given the same glorious privilege of blowing themselves up which they enjoyed in their youth.

This excess of sympathy from grown-ups should be reserved for the children who are so unfortunate as to lose their hands,—or their eyes,—or life itself,—in their "celebration."

A few years since, Pennsylvania had more accidents on the Fourth of July than any other State in the Union. Nine deaths and 482 accidents were reported for the day in the Commonwealth. In the same year there were only 1,163 accidents and 32 deaths in the entire United States, so it is evident from the most casual observation that Pennsylvania had far more than her quota representation in this distressing and unnecessary sacrifice.

Let the municipal authorities continue to do their part in preventing the barbaric sacrifice by prohibiting the sale and use of dangerous fireworks,—as in the past few years,—and by providing a sufficient amount of pleasurable and patriotic entertainment to make the day one of real celebration and patriotic enjoyment for young and old.

THE VALUE OF PLAY

Summer days are play days, for men and women as well as for children. Perhaps at this time of the year it is well for all of us to consider what play really means.

As a relaxation from the cares of business and as an educational factor of no small importance to the growing boy and girl, play should be encouraged and intelligently directed. No nation's history would be complete without some record of its amusements and entertainments. All change of manners, morals and faith is written in these records.

We are spending millions of dollars yearly upon the education of our children and as a nation we are justly proud of what we have achieved in that work. But there is much to be taught in the way of proper direction of this natural instinct for play. It is quite as worthy of the serious consideration of educators as are the other studies in the curriculum.

It is not in school, but in play, that children first learn respect for leadership and the value of courage, honor and pluck. It is on the play ground that the first lessons in democracy are taught. In those games in which the individual contests with his mates, for his school, he acquires standards which are valuable for future citizenship.

Parents who turn their children out "to play" without interest or knowledge of what diversions they seek, are neglecting a duty and missing an opportunity to turn to the greatest advantage a natural instinct. Through this means it is possible to cultivate to a high degree those qualities of imagination and character which are of inestimable advantage to growing boys and girls.

The public play-ground should serve a part as important as the public school in the education of our children.

BREEDING FLIES AT HOME

"Behold how great a matter a little fire kindleth."

For several years past the campaign against the fly has been waged with unceasing vigor, until now the majority of us have come to realize the dangers arising from this disgusting little insect.

Decency and health demand that it be exterminated and whoever is responsible for the toleration of its breeding places is a public enemy. However, before you criticise your neighbor, make a tour of your own back yard. Of course your garbage can is properly provided with a lid. No? Well, sanitation begins at home. Seek no further until this is remedied, for here is the source of much of your trouble.

Uncovered garbage cans and make-shift substitutes are the breeding places for millions upon millions of flies during the summer months. Whenever the prompt removal of kitchen refuse is impossible, it should be kept in a tightly closed receptacle. A little kerosene poured over it every day or so, will prevent the breeding of flies.

There are many other breeding grounds, such as dirty stables, insanitary out-houses, etc., but none is more common than the uncovered garbage can. One screened manure pit will do more to exterminate flies than a carload of "swatters," no matter how enthusiastically they may be wielded.

Do your share in the work of destroying these dangerous pests, by cleaning out their breeding places.

TEMPER VS. TEMPERANCE

More than two thousand years ago Confucius said, "Few are those who err on the side of self restraint."

All neurologists unite in the opinion that anger has an injurious effect on the human system. Experiments have been carried out which show that the various functions of the body are materially interfered with or arrested by excessive passion.

For those whose blood pressure is high, or those with defective heart action, fits of temper are extremely dangerous. Not only do those persons who give way to uncontrolled passion work an injury to themselves, but they almost invariably arouse a like passion in others.

There are few occasions in life which justify the display of "righteous anger." Even in these rare instances it is usually a debatable question whether well directed energy would not have accomplished more than anger.

During the hot weather small annoyances are apt to be exaggerated and trifles are likely to assume undue importance. Self restraint is valuable material in the building of individual character and a factor in the cultivation of those temperate habits of mind and body which go far to maintain sound bodily and mental health.

BATHING IN POLLUTED WATERS

There is a common but erroneous idea that clear water is pure water. Unfortunately this is often untrue, as a stream which is to all appearances uncontaminated, may carry the germs of typhoid and dysentery.

Throughout the summer months thousands of camps dot the river banks and woodlands, and seekers after health and pleasure naturally turn to the streams for their water supply and for bathing purposes.

Often camps are located close together and if there be careless disposal of the wastes by campers up stream, this neglect becomes an active menace to those below.

For reasons of safety, be careful in selecting a bathing place. Streams which are contaminated by city sewage should be avoided. If there is any doubt concerning the character of the water it is better to boil the entire supply used for drinking and culinary purposes and to forego the pleasure of swimming.

When on picnics and excursions to the country, unused wells and those in barn-yards or near out-houses should be avoided. Even springs are not always to be relied upon, for they are often contaminated by the drainage from adjacent properties. The alluring roadside spring, which is so appealing to the weary traveler on a hot day, is often so located that it receives road drainage and is therefore unfit for use. It is far safer to suffer temporary inconvenience from thirst than to risk a drink from a questionable source.

General adherence to these suggestions would prevent much of the typhoid fever which for years has been an inevitable accompaniment of the vacation season.

SOLITARY CONFINEMENT

From the earliest period when men first imprisoned their fellows, solitary confinement has been considered an extreme punishment. The thought of being shut off from intercourse with mankind,—like "a toad in a stone,"—while the world moves on, appalls the stoutest heart.

Those who suppress their emotions too completely shut themselves off and are shut off from all sympathy. They condemn themselves to solitary confinement.

Man has been referred to as a sociable animal. We have had an enormous growth of cities following the arrival of a state of civilization which made them safe and possible. This herding together of millions of the world's inhabitants is an evidence of the unconquerable social instinct.

Most of the efforts which are being made to induce emigration "back to the land" include some plan for social intercourse in the rural communities. The desire for the society of mankind is inextinguishable. Cultivating the qualities which tend to make association with our fellow creatures agreeable, is not only a duty but an accomplishment of the greatest possible benefit to the individual.

The instruction of children—and grown-ups as well—in unselfishness, sympathy, modesty, tolerance and courtesy may help to keep them sound of body and mind, for these are the qualities which raise us in the esteem of our associates whose appreciation is a factor of no small importance in maintaining mental health and efficiency.

DUST

The hot, dry winds of August, eddying through the city streets and along the country roads, will carry clouds of dust everywhere. Dust is the pet abomination of house-wives and their instinctive dislike is well founded, for in the city streets each tiny particle of dust that is blown about may be a raft which bears the minute disease producing organisms which we call germs.

Many of our contagious diseases are transmitted through personal contact or through insects which carry disease germs from the sick to the well. While the ancient theory that plagues were transmitted by the air has been disproved by the investigations of modern science, a dust-laden atmosphere may be responsible for spreading certain infections. Experiments have shown that some of the germs of communicable disease die after brief exposure to the sun's rays. Others are less feeble and thrive for a certain length of time amid the tiny particles of dust. The germs of tetanus or lockjaw are found in roads and about stables, and if the tiny particles of dust carrying these germs are introduced into a wound tetanus may result.

In the sputum of a sufferer from tuberculosis and therefore in the dust of the streets or sidewalks, we often find the tubercle bacillus,—the germ which causes consumption.

We have sound reason to think that the germs of smallpox and possibly those of pneumonia may also be transmitted in this way.

Dry sweeping of the streets, with the accompanying clouds of more or less infected dust, and the dry sweeping of buildings may be possible sources of disease infection. In many of the European cities and in some American cities the streets are washed every day. This is a sanitary measure of no little importance and should be followed wherever possible. Dry sweeping and dusting in houses with the old-fashioned "duster" should be abolished.

ALL IS NOT GOLD THAT GLITTERS

In these days of magnificent hotels we are attracted by the toilet rooms, radiant with porcelain bath tubs, lavatories and tiled walls.

After a long day's travel by train or motor the sight of such immaculate appointments and fixtures tempts us to turn on the tap, to see the rushing water flow against the white enamel bath tub and to prepare for a plunge. Our confidence is won by the beautiful design and the cleanly appearance of the entire finishing of these modern toilet rooms. The sanitarian, however, is halted by the mysterious workings of the fixtures. A pretty, porcelain, cross-shaped handle stands out from the end of the tiled wall above the bath tub. By turning this to the right the waste pipe is mysteriously closed, as the water from the running spigot gradually backs up into the tub or basin. The little piece of waste pipe, that extends from the outlet in the tub back to the plug, soon becomes dirty and retains the germs of disease from the skins and mucous membranes of the previous bathers. This pipe is filled by the first flush of water and then it gradually overflows up into the tub or basin in which you wash.

The person who used the basin just before you may have had tuberculosis and may have rinsed his or her mouth into it. More or less mucous from the mouth will settle on the sides of this little piece of pipe which is a part of the basin and cannot be reached by the cleaner.

Plumbing of this sort is dangerous to health and should be legislated against. Until the evil is removed, those traveling or using public bath tubs should run the hot water through this pipe for ten or fifteen minutes before turning the plug of the fixture, to guard against contracting disease.

The shower bath is the safest for public use.

MEAT EATING

Ever since man lost that instinct of the lower animals which enables them to select the foodstuffs that best agree with them, questions of diet have given rise to innumerable arguments. Historians and political economists have discussed the bearing of this important factor in the life of nations. The medical profession has devoted profound research work to determining just which foodstuffs are best suited to nourish men in various vocations in different climates. The question of what to eat and how to get it, has occupied a large proportion of the thought and effort of mankind and will undoubtedly continue to do so.

The tremendous increase in the price of meat during the past few years, has set thousands of housewives to seek information as to the relative foodstuff value of meat, compared with other available commodities.

Albumen or nitrogen is to be found in meat, beans and other vegetables. It can be more easily obtained from meat than from vegetables. This form of nutriment is in greater demand by the growing child or youth than by the developed adult. An allowance of two or three ounces of red meat a day,—according to the amount of physical exercise required,—is all that an adult needs. With this he should have from one to one and a half ounces of fats and five and one-half to six and one-half ounces of mixed vegetable diet, such as potatoes, white bread, oatmeal, hominy, etc.

A single ration of meat a day is enough for those taking moderate exercise,—supplemented with eggs, vegetables, bread, and a little sugar or butter, or other fats.

Beans make a good substitute for meat, for those who can digest them, but as a rule about twice the quantity in weight is required.

Squash, turnips, spinach, lettuce, etc., can be eaten in moderation, according to the degree of ease with which the individual digests them.

When an excess of meat is eaten the liver, kidneys and other organs are overworked in burning it up and in getting rid of the ashes.

Americans, as a people, eat entirely too much meat—particularly in hot weather,—and thereby waste much money and health.

THE ELEVENTH HOUR

Do you belong to the army of the Eleventh Hour?

Do you pant through the station gates a minute before the train leaves? Do you keep engagements and transact your business with the lash of Father Time snapping behind you? If you do, perhaps you pride yourself on belonging to the Eleventh Hour brigade and talk knowingly of how much better you work "under pressure."

Don't be deceived.

You are perfectly aware that the chauffeur who runs his car at break-neck speed, slams on the brake when he wants to stop and always takes the hills on high gear,—"just to show what the engine can do,"—has little consideration for the continued efficiency of his machine. The finest motor ever built is infinitely less complicated than the human engine.

So it behooves everyone to remember that the wear and tear of working under strain and continually driving business on high gear, cannot be continued without risk.

Fortunately, employers and employes are beginning to realize that a certain degree of relaxation increases efficiency. However, there are thousands of business men who drive themselves relentlessly, with an indifference which they would never permit an employe to display in handling the least costly equipment. The nerve force that proves so successful as a motive power fails utterly when exhausted and complete breakdown results.

A reasonable degree of deliberation and the exercise of forethought may save you much mental and physical strain, without the least impairment of efficiency.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., COMMISSIONER

No. 84. HARRISBURG, PA. AUGUST, 1916

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public, has been kept in mind in this presentation.

SCHOOL DAYS

Hundreds of thousands of children will go trooping back to school within a few weeks. Immediately following their return, measles, diphtheria, scarlet fever and certain other communicable diseases which reach their lowest ebb during the vacation period, will increase by leaps and bounds.

The result will be disease and death for the children and more or less disorganization in the schools.

The responsibility for the spread of much of the contagion rests with the parents. Unfortunately, in many homes a cold or a sore throat is not considered adequate excuse for keeping a child at home. Yet these are the preliminary symptoms of a number of the diseases of childhood. When Johnny or Jane has a cold or a sore throat he or she should remain at home and have it cared for. If,—as often proves to be the case,—it is the first stage of scarlet fever or diphtheria this detention may be of vital importance.

Even if it be a simpler malady, a day of care may prevent a week of illness. The child with a cold or a sore throat who comes in contact with infectious material, is in ideal conditon to contract disease. So, primarily for their own protection and welfare and secondarily for the protection of the other children, children so affected should be kept at home.

Many misguided parents seem to feel that they are doing their children great wrong in permitting them to stay out of school on account of ailments which they consider minor.

Regularity of attendance may be important but when balanced against health it is not worthy of consideration. The boast of parents that "our children never miss a day at school," means that in many instances they have been forced to go when they would have been better off at home. No one questions the value of that portion of our education which is acquired through school attendance, but the health of the child is the basis upon which rests the future of the man or woman and it should not be jeopardized for a few hours or days of school work.

CONSERVATION VS. DESTRUCTION

The present involvement of the larger portion of the civilized world in warfare and the frightful destruction of human life due to modern arms and the vastness of military operations, have focused the attention of our entire Nation upon the events occurring across the seas, casting a gloom over the minds of all thinking men.

Within a generation phenomenal strides have been made toward the conservation of mankind throughout the world. We have begun to learn how to preserve the weak and to protect the strong from disease. Already the efforts along these lines have resulted in enormous economic savings and have made possible gigantic monuments to the constructive ability of mankind, such as the Panama Canal.

However, when the present work of destruction has ceased the work of rebuilding must begin. Economic struggle for existence will be keener than ever before in the history of the world and conservation of the health of the peoples struggling to recuperate will be of greater importance in the effort to regain physical and economic equilibrium than ever.

As a nation we occupy a unique and important position, to maintain which we will need sound bodies and sane minds.

Let us continue, with redoubled vigor, the work of improving individual and public health.

HOUSING AND HEALTH

Nature intended man to live out of doors. Civilization has so extended the geographical range of the human race that this primary plan has of necessity been abandoned by the great majority of people, who spend far more time indoors than out of doors.

In the early stages of civilization,—houses were sufficiently primitive to secure a healthful degree of ventilation. In recent years there has been much talk in regard to necessary improvements in housing conditions. In the larger cities there are many miserable tenements which are unfit for habitation but the great majority of our modern houses are constructed on sanitary lines and would be reasonably healthful if they were properly used.

All the living rooms and bed rooms should be supplied with a sufficient amount of moving fresh air to keep the atmosphere perfectly sweet. With the arrival of the cold weather comes the problem of properly heating the house. The ordinary hot air furnace provides for the admission of fresh air,—as do indirect systems of steam and hot water heating. But where heat radiators are placed in the rooms, heating too often means raising the temperature of the impure and stagnant air, which often remains unchanged for hours, regardless of the number of people who breathe it.

It may add something to the expense of heating our homes and places of business, to provide for the constant admission of fresh air and the discharge of that which has been vitiated. Health, however, depends upon the quality and quantity of the air breathed and the slight additional expenditure required for heat plus ventilation is negligible, when health is considered. Heat without ventilation is largely responsible for the great increase in pneumonia which occurs during the winter months.

A HEAVY HANDICAP

In all of our schools there are children who,—(to use the small boy's expression)—are "blind in one eye and can't see out of the other." Unfortunately, the children themselves are often not aware of it; nor are their parents and teachers.

Near sighted children struggle to see the blackboard from their benches in the rear of the school room and far sighted children in the front rows endeavor in vain to get the image on the board immediately before them distinctly in view.

Children with astigmatism of one or both eyes are made unaccountably nervous and irritable by the constant demands upon their imperfect vision. Persistent headaches are often caused by such imperfections.

Of three hundred thousand children inspected in the rural schools of Pennsylvania over 82,000 were found to have defects of sight for which no efforts at correction had been made.

Nothing is more irritating or nerve exhausting than the continual strain resulting from the effort to see through imperfect eyes. To the growing child, whose brain is endeavoring to grasp new facts and solve new problems, it is often an insurmountable barrier. There are hundreds of "dull" children who could be cured by properly fitted glasses. Unfortunately, many parents hesitate to provide small children with glasses on account of appearances, or for other equally foolish reasons. They fail to realize that the wearing of glasses for a few years is often sufficient to correct a visual error which would continue for a lifetime if left uncared for.

YOUTH AND OLD AGE

Between youth and old age there is a never-ending conflict. Vitality is continually pitted against experience and victory may fall to either one or the other.

Among the greatest names of history we find, side by side, those of youth and old age. Men who have lived temperate lives and who have escaped the aggravating infirmities of age are often more than the match for youth in mental endurance.

The health and efficiency of an elderly man depends largely upon his mental attitude. The man who begins to look over his shoulder at fifty will be stumbling through life at sixty, while one who is continually looking ahead and seeking intellectual advancement will continue to increase in mental capacity. The brain's power continues to grow after the maximum physical strength has been reached.

For the man of advanced years simple diet and regularity of habits are essential. The physiologic processes are less active and many structures lack the elasticity of youth and should not be subjected to undue strain.

Tolerant age is more than a match for intolerant youth and the mental poise which should come with advancing years has a definite bearing on the physical well-being and intellectual power.

Ofttimes infirmaties of age are less of a handicap to the accomplishment of serious and effective work than is the erratic vitality of youth.

WAR NEWS AND HEALTH

"I could a tale unfold, whose lightest word would harrow up thy soul——"

With the greater portion of the space in newspapers devoted to the news from the fields of conflict, it is inevitable that the interest of the nation should be centered upon the Titanic struggles now waging. Modern facilities for the gathering and transmission of news make it possible for all of us to familiarize ourselves with the details of the struggle. The strictest of censorship does not prevent the publication of page upon page of distressing stories.

This ability to read at the breakfast table history which has been made but a few hours, verges upon the miraculous. The price we pay for it, however, is greater than is generally appreciated. Continued depression of mind reacts upon the body and interferes with its functions. Dwelling upon the harrowing stories of peaceful cities devastated and of death and destruction stalking grimly over Christian lands, cannot but stir with horror the most phlegmatic soul. With these vivid impressions continually before us, day after day, the most serene surroundings take on a disquieting aspect and quietude is impossible.

The effect of all this upon those who are less than normally vigorous and sane may be positively dangerous. For those who are aged and infirm it is certain to result in marked physical as well as mental depression. The connection between the mind and the nerve centers which control the vital organs is of extreme delicacy and is little understood. It is certain that continued mental disturbance is often the forerunner of serious bodily ailments. It is well to exercise restraint in this regard. Do not allow the war to monopolize your entire thought. The cultivation of patriotism, optimism and a cheerful view of life is at all times desirable; under the present conditions it is the best of health insurance.

PTOMAINE POISONING

Ptomaine poisons are the products of germ life and cause serious disturbances of the digestive organs. Generally speaking ptomaines are the results of the decomposition of food stuffs. This decomposition is caused by bacteria. In the process of the growth of these decomposition bacteria, a poison is produced which effects a violent disturbance when introduced into the digestive system. Sausage, decomposed fish, cheese, ice-cream, milk, canned meats and vegetables are the food stuffs most commonly responsible for ptomaine poisoning. Cooking will not always destroy the ptomaines in food stuffs. It kills the bacteria but their poisonous products sometime remain.

Unfortunately, our sense of taste does not warn us in the majority of instances, of the presence of these poisons. This is often due to the common practice of over seasoning our food stuffs and the excessive use of condiments. It is also the practice of certan canners of food to add preservatives which make it possible for them to use decomposed meats or vegetables. If foods for canning are properly inspected before their preparation and if the decayed portion is eliminated, they can be made to remain unspoiled without the addition of injurious preservatives.

Ptomaine poisoning, as a rule, develops a few hours after eating and progresses rapidly.

In the treatment of ptomaine poisoning the first essential step is to wash out the stomach and to empty the intestinal canal of as much of the decomposed food as possible. These things may be done while awaiting the arrival of the physician.

POSTURE

"As the twig is bent, the tree's inclined."

Few people appreciate the value of correct posture. Not alone does it bear decidedly upon our bodily health but it has an equal if not a greater bearing upon our mental attitude. When a man is "down and out" we plead with him to "brace up." It is almost impossible to associate incompetency and weakness with a firm upright carriage. Resolution seems to be the natural accompaniment of an erect, well poised physique. Not alone for its effect upon ourselves, but for the impression which it makes upon our fellows, we should endeavor to cultivate an upright bearing.

If you slouch at your work you really incapacitate yourself. A proper position,—sitting as well as standing or walking,—is required to insure the maximum use of body and brain. A depressed head and shoulders means a contraction of the chest and a corresponding inability to expand the lungs to their full extent. Any lessening of our maximum breathing capacity is harmful.

This position, if persisted in, may also interfere with the heart action. It is particularly important for growing children,—especially those of school age,—to acquire a proper posture.

Considerable attention has been given to the seating of pupils, but until every backless bench has been removed from our school rooms and every child is given a properly designed seat which permits the feet to rest on the floor, and a desk of proper height,—the necessary work in this direction will not even be begun.

The acquirement of a graceful, upright carriage by both boys and girls, is an acquisition whose value can scarcely be overestimated either in the social or business world. The man or woman who has fallen into careless habits in this respect will find his efforts at correction well repaid.

No violent gymnastics are necessary. A few simple exercises and a little determination will accompilsh much in making proper posture a permanent good habit, to our physical and mental benefit.

"AM I MY BROTHER'S KEEPER?"

Those who are ever ready to complain that their personal liberty is being attacked, whenever the welfare of their neighbors demands any restriction of their actions, are usually the first to denounce a similar desire for freedom on the part of others.

Modern methods of administering the health laws of the State and municipalities render strict quarantine necessary in the presence of certain communicable and infectious diseases. In the case of children this quarantine is often followed by exclusion from school for an additional period of time.

It would seem obvious to any unprejudiced observer that this requirement for the protection of innocent and unprotected citizens is eminently just from the standpoint of man-made law, as well as the higher mandates of divine law.

Strange as it may seem, there are many worthy people who permit their selfish interest to blind them to these duties. This is due, no doubt, to their ignorance of the dangers which may result from carelessness.

Hundreds of deaths from measles might be avoided annually,—for instance,—if parents would not look upon the disease as a more or less-trifling complaint of childhood, from which all children must inevitably suffer. The child with a sore throat who is permitted to go to school without medical attention may become the source of an epidemic of diphtheria which will cost lives and heartbreaks.

No matter how efficient the administration of the public health laws by the authorities may be, it will be impossible to triumph over disease, unless the public is educated to appreciate the necessity of co-operating with the authorities by living up to the spirit of the law.

If we fulfil our duty to others, it will redound to the protection and well-being of ourselves.

FOOT STRAIN

Rudyard Kipling makes one of his characters in a military tale say,—"A soldier is no better than his feet."

The man whose occupation or duties require him to stand or walk for the greater portion of the day, falls into the same category, —he is no better than his feet.

This is not due to lack of mobility alone but to the ever present strain on the nervous system when the feet are partially incapacitated. Anyone who has suffered from the breaking down of the arches of the feet can appreciate the extreme painfulness of the condition and the serious character of the handicap.

Many people do not appreciate that worn-down heels throw the weight of the body to one side or other of the foot and so cause a continuous strain when walking or standing. Many who are particularly careful about the care of their hands pay less attention to their other extremities.

Our modern shoemakers are now turning out better shoes than have ever before been made in the history of the world. They are less clumsy and more serviceable. Unfortunately, however, the dictates of fashion have led women and men to wear footgear which distorts the natural shape of the foot.

The Roman sandal, which permitted the toes to assume their natural position and allowed each one of the five to bear its portion of the weight and to give spring to the step, was obviously more sensible than the modern French heeled pump. The latter throws the weight of the body on the ball of the foot and this causes a strain to keep the body balanced. This may be an unconscious action, but it is nevertheless tiresome. Owing to the craftsmanship of present day shoemakers it is possible for both men and women to secure neat, trim-looking footgear which is sensible in shape.

To be comfortably shod is no small factor in the preparation for one's daily work. It is of material aid in increasing individual efficiency.

ARTIFICIAL LIGHTING

The number of hours in our working days has been materially increased over that of a century ago. Necessity, "the mother of invention," has made this possible by the evolution of our system of artificial lighting.

It is a far cry from the tallow dip to the tungsten lamp. To reap the benefits of the increased activities which have been made possible by the advancement of science in this direction, it is imperative that every precaution be taken to save our eyes from unnecessary strain and overwork.

The abundant, diffused illumination of daylight is much easier upon the eyes than direct and concentrated artificial light. Therefore, it is desirable to secure the nearest possible approach to daylight. Clear globes should be dispensed with and frosted ones should be substituted in their place. The eyes unconsciously direct themselves toward glaring light and a few hours of glare will result in considerable strain to the best of eyes.

For general illumination in churches, stores, lecture halls and hospitals, reflected lights which cut off the direct rays from the vision seem to represent the most improved system thus far devised. For the work-bench, for reading, bookkeeping and similar occupations, the direct light shining on the work, from a frosted globe properly shaded to keep it from the eyes, is as yet unsurpassed.

Workers and students should exercise all possible care in providing themselves with adequate light. It will result in comfort and greatly increased efficiency. Slight defects of vision are apt to become accentuated by the strain incidental to work in poorly lighted rooms.

WINTER CLOTHING

When the Autumn season arrives the thoughtful housewife gets out her husband's "flannels" and her own.

Unfortunately many people dress according to the calendar and if the weather happens to be unseasonable,—so much the worse for the weather.

Winter means heavy clothes and, too often, heavy underclothes. Of course, the question of occupation for the individual is a factor to be considered in choosing winter dress, but the great majority of people spend their time in steam-heated homes and offices where the temperature is but little lower in winter than in summer.

For those who live or work in tempartures from 68° to 70° Fahr., the wearing of heavy underclothes is not only fraught with considerable discomfort but is apt to lead to colds. The two necessary requisites in sensible and healthful dressing of the body are to keep the skin dry and to give it air.

A certain amount of evaporation of moisture from the skin is constantly going on, to equalize the bodily heat.

If the underclothing is too heavy and tight fitting, it does not permit of sufficient circulation of air over the surface of the body. An excess of heat or a little unusual exercise will cause perspiration. If, in this condition, there be exposure to cold, the overheated parts may become chilled and a cold is apt to result.

When some circulation of air is permitted, perspiration is disposed of by evaporation and the skin remains dry. Old people, babies and those with weak hearts should always be clothed with thin woolen underwear, in order that they may be kept warm and that the evaporation may be gradual. In going from a warm indoor temperature to the cold outer air, heavy outside garments should be worn,—to be laid aside on re-entering the heated rooms.

It is becoming more and more customary for indoor workers to wear lighter weight undergarments in winter and to depend more upon their outer clothing to protect them from the cold when exposed.

HABIT—A CURSE OR A BLESSING

Someone remarked that "man is a creature of habit"—permitting us to draw our own conclusion.

We are perfectly familiar with bad habits. Even if we were without conscience, teachers and moralists would soon convince us of this fact. Fortunately, there are also good habits and they are often blessings—thinly disguised. Our general health and well-being depends largely upon the character of our habits.

Regularity partakes something of virtue. This is particularly true when it pertains to eating, sleeping, labor and recreation, which cover the daily program of mankind. In the primitive state it was impossible for our ancestors to eat regularly. The hunter might be successful and then again he might not be. Periods of enforced fasting were followed by corresponding over-indulgence whenever the chase was successful. The demand for food at regular intervals was the first stimulus to civilization. We have now achieved a state where three meals a day are possible to most of us. In gratitude we should practice moderation, knowing that in a few hours more food will be forthcoming.

Sleep is the great restorer of both body and brain. Irregular hours of rest result in undue strain upon the nervous system which, in turn, reacts unfavorably upon the human economy. Regularity in the periods of rest make for even temper and for physical stablity.

Labor, to achieve worthy accomplishment, must be steady and persevering. The habit of work is a necessity for one who would realize his ambitions.

Even in our recreations the majority of us benefit from a certain degree of system,—otherwise even recreation is apt to become a matter of over or under indulgence.

It is quite the same with our bodily functions.—Temperance and regularity are conducive to maximum efficiency for the longest period of time. Excessive friction and rust are equally hard upon machinery.

The formation of good habits in the care of the teeth, the matter of bathing, daily evacuations, eating, sleeping, exercise and living in the fresh air, will go far toward making less frequent the doctor's visits.

DANGEROUS GASES

When the first cold snap arrives, down go the windows in homes and offices. Whatever fresh air is obtained finds admission when somebody opens the door to enter or depart.

If the heating arrangements are deemed insufficient they are often supplemented with oil heaters or gas stoves. In the vast majority of cases these heaters and stoves are without flue connections and as they burn they exhaust the oxygen in the air with great rapidity When the atmosphere in a room is devitalized in this manner it becomes dangerously unfit to breathe as its life-supporting qualities are exhausted.

When gas stoves are used without ventilation there is danger from carbon monoxide gas. This is an odorless gas which also escapes from coal fires. One per cent of it in an atmosphere will kill a horse in two minutes. It is visible as the blue flame which burns over anthracite coal after it is put on the fire. This gas often permeates the entire house, from the furnace in the cellar or from the kitchen range. The sulphurous gas which escapes with it is irritating to the olfactory organ and so usually gives warning.

To guard against the escape of gases, neither fire doors nor stove lids should be opened or removed beyond the point where the flame of a match, held close outside, will be drawn inward. As long as the draft is up the chimney the gas will be carried with it.

Unfortunately, the majority of heating systems are planned without providing for ventilation. Direct steam and hot water heating plants usually have this pernicious fault of being without provision for the admission of fresh air and they are responsible for much ill health.

There are more people who die from the improper use of steam heat than those who freeze to death.

SELFISHNESS AND HYSTERIA

One can scarcely say that selfishness is responsible for nervousness. Yet, unquestionably, it is often a considerable factor in causing nervous ailments.

The self-centered individual who continually thinks of his own comfort and manifests annoyance over trifles which interfere with his particular occupation or activity, is running a decided risk. With advancing age a marked degree of irritability is almost sure to follow.

If a selfish attitude is cultivated and if consideration for individual whims is demanded without regard for others, selfishness soon becomes little less than a mania.

In the beginning many of the things which "get on our nerves" do not really distress us. We note them casually. With their repetition comes the selfish wish to have our individual comfort considered, without regard for general conditions. If we give way to this wish the most trifling occurrences hold possibilities of causing infinite annoyance.

The greatest number of sufferers from nervous irritability are not —(as might be expected)—overworked individuals. Commonly enough, they are people who have little or nothing to do. For want of activity they devote too much time to thoughts of self.

It is a common experience to hear some individual say, "so and so gets on my nerves." The very manner of the speaker has an equally irritating effect upon the unfortunate auditors. Nervous irritability and selfishness beget their like. They are contagious.

Let us be unselfish and so avoid the spreading of this common complaint.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916. Fifteen little talks on Health and Hygiene.
83. July, 1916. Fifteen little talks on Health and Hygiene.
84. August, 1916. Fifteen little talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA

Health Bulletin

No. 85 HARRISBURG, PA. SEPTEMBER, 1916

Entered as second-class matter August 9, 1909, at the post-office at Harrisburg, Pa., under the Act of July 16, 1894.

PUBLISHED MONTHLY BY

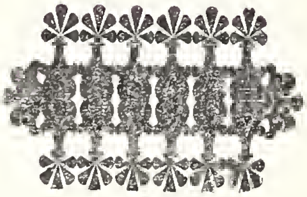
THE STATE DEPARTMENT OF HEALTH

SAMUEL G. DIXON, M. D., LL. D., Sc., D.,

COMMISSIONER.

1. The Tooth Brush.
2. Picnic Drinking Water.
3. Hints to Vacationists.
4. Household Sanitation.
5. Headaches.
6. Measles.
7. Disease Germs.
8. The Universal Tipple.
9. Prevention vs. Cure.
10. Mosquitoes.
11. Stoop Shoulders.
12. Worry.
13. Boiling Water as a Disinfectant.
14. Raw Foods.
15. The Care of Wounds.

HARRISBURG, PA.:
WM. STANLEY RAY, STATE PRINTER
1917



FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public, has been kept in mind in this presentation.

THE TOOTH BRUSH.

The tooth brush is indispensable from youth to old age.

Its primary purpose is excellent, but it is well to remember that as it is intended to clean, the instrument itself should be beyond suspicion. The majority of disease germs find their way into the human system through the mucous membrane of the nose and mouth.

If the teeth are not frequently and properly cleansed these germs or bacteria will multiply in cavities or where particles of food have become lodged between the teeth. These minute germ breeding centers should be removed by vigorous brushing but when the desired result is accomplished care should be taken that they do not in turn lodge in the inter-spaces of the tooth brush. If they remain there they are later transferred to the mouth.

To guard against this the brush should be thoroughly cleansed, before and after use, in scalding water if this is obtainable; if not, in some non-poisonous antiseptic wash. At least wash the brush with soap and water and rinse thoroughly.

Care should be taken not to place a tooth brush in a place exposed to dust and dirt. If there be several members of the family, separate receptacles should be used for the various brushes, as the germs of disease may readily be transmitted from one brush to another if they come into contact.

It is well to make use of white thread, or dental floss, to remove such particles from the spaces between the teeth as are difficult to remove with the brush. Decay often starts from fragments of food that lodge between the teeth.

When you visit the dentist you expect and demand exceptional cleanliness in the care of his instruments. See that your own dental utensils are immaculate.

PICNIC DRINKING WATER.

The picnic season has begun. Every alluring spot for miles around the towns and cities will be the Meccas for pleasure seekers from now until the coming of frost.

Nearly everybody attends a picnic at sometime during the season. Now that the automobile has made even remote districts readily accessible to city dwellers, the number of urban residents who seek an occasional day's relaxation in the country has tremendously increased.

Nobody thinks of going on a picnic without taking a generous supply of food, but few people are far sighted enough to carry their drinking water. Some spring, brook, or farmer's well will be sure to supply this essential. As a result of this indiscriminate dependence upon unfamiliar sources of water supply, hundreds of pleasure seekers contract typhoid fever every season.

The period of the year when typhoid fever is always most prevalent is that immediately following the vacation season. While this prevalence is not the sole result of picnics they doubtless play an important part in this annual toll of illness and death.

It is not a difficult matter, when taking an auto trip, to carry a supply of drinking water from a source known to be uncontaminated. Moderate priced vacuum bottles or other forms of containers which will keep the water cool can be secured.

If a local and unfamiliar water supply must be used, boiling the water for twenty minutes will make it safe. Clear water unfortunately is not always pure water. Many a sparkling, crystal clear, roadside spring is open to pollution. However attractive the little brooklet which babbles along under the overhanging trees may appear, one must needs follow it to its source to be certain that it is free from contamination. So for safety's sake carry your drinking water in the picnic basket.

HINTS TO VACATIONISTS.

Nature's siren song is calling the city dweller. It lures to mountain, meadow, lake or camp. The call is universal and all who are free hasten to answer.

In selecting a place for a summer home or a brief summer vacation it is well to observe a few basic precautions and thus avoid illness which may result seriously or fatally.

There are thousands of resorts, cottages and camps where the defects in sanitation offer a genuine menace. The following things should be carefully observed.

The water supply.

The disposal of sewage and garbage.

The milk supply—particularly if there are infants or young children among the vacationists.

If the water supply comes from a well, be sure that it is not so located as to receive underground or surface drainage from a barnyard or outhouse. It is imperatively necessary to boil water taken from surface streams. Clearness is not a guarantee of purity.

If springs are the source of supply, care should be taken that they be not surrounded by habitations or other sources of pollution. In small villages or seashore places where the water supplies are public, diligent inquiry should be made as to whether the source is free from sewage contamination. If the disposal of sewage and garbage is careless, flies are certain to breed, and unless kitchens and dining-rooms are carefully screened there is likelihood of typhoid or diarrheal infection from this source.

With young children, particularly infants, the question of a clean milk supply is one of vital importance. Fresh milk is of little or no advantage unless it be clean milk.

Mosquitoes may prove a nuisance and there is the possibility of malarial infection in regions where anophelines abound.

Failure to give attention to these essential points of sanitation may result in poignant regrets insead of delightful holiday memories.

HOUSEHOLD SANITATION.

Without doubt some ancient sanitarian was responsible for the proverb "Cleanliness is next to godliness." While most people accept this in theory, weakness unfortunately develops when it comes to practice.

In ninety-nine out of every hundred homes there are corners in attic or cellar, under the kitchen sink or in the bottom of the pantry cupboard, that somehow seem to escape clean up days regularly.

Accumulation is a mania with some people. The ways in which it manifests itself may vary, but the result is the same. This mania is responsible for the filling of our houses with an enormous amount of unnecessary junk which serves to make cleanliness difficult.

Even though dirt and filth are not necessarily direct causes of disease there is generally an association. Organic material which is left scattered about becomes the breeding place of bacteria and flies. Careless habits of mind and body are cultivated and fostered by careless habits of living. A child raised in a home where there is indifference to household cleanliness, can hardly be expected to develop an appreciation of the virtue and advantage of cleanly habits.

The same influences which operate within a house, appertain equally to its surroundings. A peep at the back yard will give you a far better insight into the character of the occupants of the dwelling than a study of the front door. Ashes, garbage and rubbish scattered in the rear of a dwelling are not conducive to good health or decency.

Cleanliness and wholesomeness go hand in hand. See that your household sanitation is all that it should be and make these "twin sisters of Good Health" welcome in your home.

HEADACHES.

Headache is one of the most common ailments. Even people in comparatively good health are subject to this malady, from time to time. Because it usually manifests itself in the same form and general locality, many people believe that the source of the difficulty is located in the cranium itself. This is rarely the case.

The causes of headache are numerous and cannot be removed by the use of smelling salts, ice bags, cold towels and headache powders.

Headache may come from defective teeth or eyes, from acute digestive disturbances, from defective action of the liver, imperfect intestinal peristalsis and secretion in the intestinal canal, absorption of toxic products from the bowel contents, long continued irritation of the nasal cavities, high blood pressure or other causes as widely varied as those mentioned.

Constantly recurring headaches may also be manifestations of profound systemic disturbances of the body which demand medical attention. The cause, more serious than the headache itself, should be found and removed.

Often the immediate cause of headache is over stimulation of the heart. Undue heart stimulation accompanies a number of organic disturbances and results in abnormally high blood pressure within the brain; the majority of headache remedies offered for sale contain powerful heart depressants which bring temporary relief.

There is always danger however in the use of any drug sufficiently strong to produce this result, if there be weakness of the heart. These headache cures, so indiscriminately offered, do not correct the real causes of the disturbance.

Serious or even fatal results may come from their constant use and they cannot effect a cure. Any person subject to recurring headaches should consult a physician so that the cause may be determined before any treatment is applied.

MEASLES.

Of the common ailments of childhood there is none held in more contempt by many people than measles. Familiarity may be blamed for this. The fact is that, in the great majority of cases, the children recover from the acute attack to such a degree that the parents do not recognize the highly susceptible condition in which it leaves most of the organs of the body. The lungs in particular are left in condition to permit the germs of tuberculosis to live in them and in this way measles causes an untold number of deaths. This result is so removed from the acute attack that the layman fails to recognize the relationship.

While far more children die from this cause than from scarlet fever, the latter disease is universally feared while measles is looked upon as a necessary evil.

It is a common practice, with many people of considerable intelligence, to expose children to measles when it is prevalent. "They might as well get it over with," is the usual excuse offered for this dangerously ignorant practice.

The after effects of a severe case of measles may be quite as damaging to the health of the child as those which follow scarlet fever. Weakening of the lungs, with resulting susceptibility to tuberculosis, follow in hundreds of cases.

Diseases of the ear are also frequent results. Despite its universal prevalence, there are many factors in connection with measles of which the medical profession is in ignorance. It is certain however, that it is most readily transmitted by the discharges from the nose and mouth of the patient in the early stages of the disease and for this reason children who have been exposed and who have developed coughs should not be allowed to associate with other children.

Owing to the prevailing ignorance of the serious nature of the disease, parents often attempt to treat their children without calling in a physician. In view of the frequent serious complications, which may mean death, no risk should be taken.

For eight years the death rate from this disease in Pennsylvania has been higher than for scarlet fever and this is largely due to ignorance and to indifference of parents in permitting their own children and other children to be exposed to measles.

DISEASE GERMS.

There are many things in the world which our unaided five senses would never apprise us of. There are sounds too delicate for the ear to hear, odors which we cannot smell, flavors which we fail to recognize, movements and vibrations to which our nerve centers do not respond and innumerable objects in Nature which we cannot see.

Even the bravest man shrinks from danger which is unseen. The deadliest enemies of mankind are absolutely invisible to the naked eye. Tuberculosis, cholera, typhoid fever, the plague, yellow fever and many other of the diseases which claim a greater number of lives than ever have been sacrificed in war, are caused by those invisible enemies which scientists call bacteria or microorganisms. Commonly these are referred to as disease germs.

Bacteria are minute organisms, the largest of which are only about one ten thousandth of an inch in length. Not all bacteria are harmful, but those which are responsible for disease when introduced into the human or animal economy multiply with startling rapidity and give off poisons which cause sickness and death. Millions of these organisms could be contained in a single drop of water.

There are three very common ways in which disease germs are carried from person to person and introduced into the system,—by fingers, food and insects. Raw foods and milk and water are most likely to transmit infection. Thorough cooking destroys the contained bacteria and unless the food is infected afterward, by being handled, it is safe.

Our fingers are continually coming in contact with articles touched by others and so may be contaminated with human excretions from those diseased. The intestinal discharges of those suffering from typhoid fever contain the typhoid germs and here uncleanliness is responsible for their transmission. Many epidemics of typhoid fever have been traced to a single case on a dairy farm where the housewife acted as nurse and milk-maid.

Insects alone are responsible for the transmission of the germs of certain diseases. Yellow fever and malaria, for example, are carried from the sick to the well, each disease by a single variety of mosquito.

THE UNIVERSAL TIPPLE.

Coffee and tea are the two beverages used almost universally by the adult population of the civilized and semi-civilized world.

It is not possible to say how many tens of millions of dollars are expended upon them annually. Although their use has steadily increased they might be discontinued by multitudes who have formed the habit, without any loss of benefit. In the majority of cases abstinence would result in distinct physical gain.

Neither coffee or tea are foods. Both are stimulants and it is this fact which explains their popularity. As with all other stimulants, there is a tendency to over indulgence because a moderate allowance fails, after a time, to give the necessary incitement to the nervous system.

While the mind is often stimulated by coffee or tea to good work for a short time, such stimulus is transitory and a period of depression is apt to follow their use and the use of all stimulants. Experiments have shown that over indulgence in both tea and coffee has a tendency to dull the working of the mind in the long run.

Moderate use may not be followed by noticeable ill effects but nervousness and disturbance of the digestive system are almost certain to follow the excessive use of either. Tea has a notable astringent action which is often harmful.

Any value following the use of a warm beverage with meals,—wherein the majority of the food is below the body temperature,—is probably offset by this action. Hot water or the "cambric tea" of our childhood days (hot water, whole milk and sugar) is far better.

Many people rely upon coffee and tea as beverages almost exclusively and fail to drink proper quantities of pure water.

PREVENTION vs. CURE.

The well worn adage,—"An ounce of prevention is worth a pound of cure,"—has long been accepted as one of the wisest of saws.

We are all willing to admit that prevention is the thing, but too often we halt at the price and are later obliged to pay roundly when the necessity of cure is forced upon us. A day at home, in bed, when a hard cold is impending, seems an extravagant waste of time to many people, yet it would be difficult to estimate how many really serious illnesses may be prevented by rest and by care in the early stages of disease.

How many parents have suffered the agonies of regret for failing to seek medical advice when their children were suffering from "sore throat" which eventually proved to be diphtheria?

How frequently we see women, in severe winter weather, sacrificing comfort and defying common sense in dress for the sake of what they consider appearances! How many men, physically exhausted and working under strain, try to "buckup" with a few drinks?

These are but a few common examples of the people who refuse to pay the price for their ounce of prevention. They may escape once, twice or a dozen times, but in the long run they foot a heavy bill. The physicians' best patients are the men and women who boast of never calling a doctor until the are "really sick."

Much of the greatest success which has been accomplished in medicine during the past generation has attended preventive work. The great future of the art lies in prevention and the time is rapidly approaching when the occurrence of many of the ailments now common will be looked upon, by intelligent people, as evidence that the sufferer has been inexcusably neglectful of his own wefare.

Do not hesitate to pay cheerfully the cost of prevention when health is at stake, for no investment offers a higher interest than expenditures for your physical well-being.

MOSQUITOES.

Mosquitoes born in the Spring live all summer. More than this, each female lays hundreds of eggs varying in number according to the species. These multiplied by the generations of a season would total millions of mosquitoes. When their breeding season begins we should be diligent in our efforts to destroy their breeding places. Should we fail in these efforts we will be annoyed by their buzzing and their biting and perhaps by an increase of malarial fever, if a certain species of mosquitoes is present. Should yellow fever be introduced to our shores, it would make for serious epidemics in localities where stegomyia mosquitoes abound.

If we have to use rain barrels for collecting our water supply, they should be carefully screened so that the mosquito cannot reach the water and lay her eggs. If fresh pools exist about our places they should be filled up, or drains should be laid to carry away the rain water and to prevent it from collecting. If our swamps are too large to drain or fill up, they should be treated with petroleum, so that the oil film on the surface of the water will prevent the larva of the mosquito from reaching the surface atmosphere. It will then die for the want of oxygen.

In country places ducks, particularly mallards, will do much to keep down mosquito pests, as they are very fond of mosquito larvae or pupae.

Tomato cans, tin boxes, broken cups,—any broken parts of a vessel that will hold an ounce or more of rain water,—afford breeding places for mosquitoes. One tomato can half full of water will be sufficient for the rearing of thousands of mosquitoes.

The saucers under the flower pots in and around our houses offer favorable breeding places. Water vessels that are set out for birds and animals are often full of mosquito larvae. Therefore, such receptacles should be emptied daily, thus preventing the hatching of any eggs that may have been laid in them. Water pitchers in rooms that are only occasionally used have often been found to be fertile breeding places and houses may thus become filled with mosquitoes, from the circumstance of one or two female mosquitoes finding access to the water in the pitcher of a spare chamber.

STOOP SHOULDERS.

Atlas bore the weight of the heavens upon his head and hands, according to a Greek myth, but those of mankind who carry the burden of life too often let it rest upon their shoulders. Stoop shouldered men and women by thousands are to be found among the followers of sedentary occupations. Nine out of ten will square away their shoulders when the subject is mentioned and say,—"I'm getting a little careless about that". Then they make a momentary resolution that they will "brace up" and overcome the fault. That it is a fault and one that has a distinct bearing upon health, there is no question.

No system of physical culture is complete if it does not include those exercises which teach erect carriage and deep breathing, neither of which is possible without the other. Herein lies the chief ill effect of stoop shoulders.

To maintain good health we should inflate our lungs to their normal capacity at all times. The proper purification of blood through oxygenation requires ample breathing. Drop your shoulders forward and then try to take a full breath; note how impossible it is to do so in that position. Breathing is only partially accomplished with the shoulders forward and the breast bone depressed. The lower portion of the lungs cannot be emptied and instead of receiving a supply of fresh air they remain filled with residual air.

To work, sit, or walk, day after day, with the shoulders hunched forward, means that the lung capacity is lessened by just so much and that a corresponding loss of vitality may be expected.

Such improper posture also permits the sagging of the diaphragm with a resulting displacement of the abdominal organs that leads to serious digestive disturbances.

One need not resort to shoulder braces or other mechanical means to correct stooping shoulders. These are but makeshifts and do not remedy the real trouble. Exert the mental effort necessary to keep the body erect. By maintaining proper posture the muscles will be strengthened and made to do their work of holding the body upright.

When children exhibit a tendency to grow stoop shouldered, parents and teachers should see that they are given physical exercises to correct the fault.

WORRY.

Worry,—"to choke or strangle",—says the dictionary. It is not necessary to seek further for the definition. The physical manifestation of mental torment is just this.

Worry strangles our mental powers and chokes the bodily functions. There are innumerable instances in which physical decline and even death are directly traceable to worry.

It is true that in everyone's life, the force of circumstance, bitter experience and trying problems must be met, considered and conquered. No matter how vital these experiences and problems may be, or how much real thought is required in their solution, worry can never aid and it must inevitably handicap all efforts to obtain a clear point of view or a true perspective of Life's happenings.

The ancient philosophers deemed worry unworthy of men of true mental attainment. Our physical makeup is so finely adjusted that any distress of mind reacts upon the bodily functions. Excessive anger is often followed by illness and worry, with its accompanying morbid thoughts, has a like influence.

There is a close relationship between our physical and mental selves. A sound body is a reserve force behind the mind. When tempted to worry, bestir yourself physically. Exercise in the open air,—a long tramp,—or some similar diversion will oftentimes prove sufficiently stimulating to aid materially the effort made to cast off the mental burden.

Another and even more effective measure, is to keep busy at one's daily tasks. Occupation,—if it be of a nature to require close application,—is one of the most effective cures for worry.

BOILING WATER AS A DISINFECTANT.

Measles, scarlet fever, diphtheria and certain other communicable diseases are perhaps most readily transmitted by the discharges from the nose and mouth of the patient.

When the patient is cared for in the home, where some member of the family must act as nurse, it is necessary for the protection of whomever acts in this capacity and for those who come in contact with the patient, that the umost care be exercised.

Instead of the handkerchiefs commonly used for receiving these discharges, the patient should be supplied with cheese cloth or paper napkins in a sufficient quantity. Those which have been used and discarded should be handled only by the nurse and should be burned immediately. After handling such materials, the hands should be thoroughly disinfected in some good antiseptic solution or washed with disinfectant soap.

The dishes and eating utensils used by the sufferer should never be washed with those used in the household by the family. They should be placed in a receptacle containing a disinfecting solution of cresols or formaldehyde, kept just outside the sick room door. They should then be placed in boiling water and allowed to boil for ten or fifteen minutes.

Sheets and bed clothes will invariably be sprinkled with fine particles of sputum when the patient coughs or sneezes and they should be placed in a tub containing one of the disinfecting solutions and allowed to soak for three hours, after which they should be boiled for one-half hour.

When there is a sufferer from tuberculosis in the household, he should not use the dishes or eating utensils which the other members of the family use, but should be supplied with individual utensils. These should always be boiled first and then washed separately.

These are fundamental precautions to be taken in the handling of communicable diseases and they can be disregarded only at the peril of the nurse and the entire household. Without question, the transmission of disease from one member of the family to another is due, in many cases, to failure to follow out this procedure consistently.

RAW FOODS.

This is the season when the amateur gardener's eyes are delighted by the rows of summer vegetables which poke their green leaves above the warm earth. The season for raw foods has already arrived.

Lettuce, water-cress, radishes, parsley, cucumbers, leeks, berries and many other toothsome, growing things adorn the market stalls and tempt the housewife after the winter menu of canned vegetables.

A certain percentage of raw foods is an excellent stimulant to the appetite and a wholesome dietary change at this season of the year. Care should be exercised however, to make sure that these raw foods are properly cleansed before being eaten. Often the laborers in the truck gardens are careless in the use of dangerous fertilizers. Others who are also careless to a degree that is almost criminal are those who pick and prepare the vegetables for market.

All vegetables to be eaten raw and all berries should be thoroughly washed before being eaten, even at the risk of slightly injuring their flavor.

Gardens should be fertilized with care. No night soil should be used on truck gardens. Watercress must not be grown in polluted streams. Watercress so grown may produce epidemics of typhoid fever. Bananas should be thoroughly washed as soon as they come into the hands of the consumer, so that dirt taken on during transportation will not be conveyed to other edibles.

THE CARE OF WOUNDS.

The scratch of a poisoned ring was often sufficient to effectually dispose of an enemy during the Middle Ages. Such procedure is no longer fashionable and many people now carelessly neglect slight wounds, thinking them unworthy of consideration.

It is easily possible for any cut or abrasion sufficiently deep to draw blood to become infected, with possible serious results. Not that one should worry over a cut finger but certain precautions should be given to even the slightest wounds.

Through puncture, scratch or cut some of the many pathogenic micro organisms may find entrance and result in infection. As these little trouble makers are found everywhere and on almost everything we touch, it is obvious that some protection should be given any open wound.

First of all, the wound should be thoroughly cleansed, preferably with water which has been boiled. After this is done some antiseptic should be applied. A two per cent solution of carbolic acid, or tincture of iodine applied around the edge and directly in the cut will satisfactorily disinfect smaller wounds and either can be easily obtained. A piece of sterile gauze or linen should then be applied.

The wound should not be hermetically sealed, as some of the most dangerous infecting agents are those which only thrive when the air is excluded. Among these is the germ of the dreaded tetanus or lockjaw. For this reason court plaster is not a suitable dressing.

Travelers, campers and vacationists should provide themselves with sterilized bandages before starting on a trip. These are put up in convenient and compact form and are of material use in caring for wounds. In case sterile bandages are not at hand, linen can be sterilized by dipping it in some antiseptic solution or boiling in water for a few moments.

Deep cuts and wounds of a more serious nature should always be treated by a surgeon.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
3.	Feb.,	1913,	Tuberculosis and our Schools.
4.	March,	1913,	The Relation of the Undertaker to the Public Health.
5.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
6.	May,	1913,	Troy Typhoid Fever Epidemic.
7.	June,	1913,	The Registration of Vital Statistics a Social Service.
8.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
9.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
0.	Sept.,	1913,	Health and Education. An Address.
1.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
2.	Nov.,	1913,	Bathing.
3.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
4.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
5.	Feb.,	1914,	Reproduction and Race Betterment.
6.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
3.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
7.	May,	1914,	Insanitary Bath Tubs and Lavatories.
3.	June,	1914.	On Housing.
.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
.	Nov.,	1914,	Effective Rural Sanitation. End Results.
.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
.	Jan.,	1915,	Present Organization of the State Department of Health.
.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
.	May,	1915,	Flies as a Factor in Infant Mortality.
.	June,	1915,	Pennsylvania Health Legislation of 1915.
.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916, Fifteen little talks on Health and Hygiene.
85. Sept., 1916, Fifteen little talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public has been kept in mind in this presentation.

CHANGE.

The majority of people who are occupied for fifty weeks out of the year should seek in the remaining two to find—not necessarily rest,—but a change of environment.

The man who has struggled through the crowded streets of a city and ridden on packed trolley cars and railroad trains for months on end, should make his way to the quiet country side, the camp in the woods or some spot equally free from the press of humanity.

The man who lives in the country or small town may find a corresponding benefit from a week or more spent amid the rush and turmoil of the city. Each of these widely varying environments holds the possibility of affording a mental stimulus to persons unfamiliar with its moods.

The mind needs refreshment and change no less than the body. It needs the stimulation of new ideas. This change is more easily acquired where everything is strange and unusual. It is out of the question for the man who maintains his regular routine, day in and day out, to continue to put indefinitely into his work the same vigor.

We can become over-developed along one line mentally as well as physically and with even more serious effects upon our welfare.

If in seeking for a change we encounter surroundings which, owing to unfamiliarity, are not agreeable, they make our daily round seem more acceptable by contrast.

So plan your vacation that it will cause you to realize afresh how multifarious and interesting are the activities of mankind and how soothing to the weary mind are Mother Nature's marvels.

MIRTH.

"Frame your mind to mirth and merriment
Which bar a thousand harms and lengthens Life."

Lycurgus decreed that statues of the God of Mirth should be set up in the halls where the Spartans ate.

Men of all ages have appreciated the value of a cheerful disposition. The cultivation of cheerfulness, even in the face of misfortune and disaster, unquestionably helps to prevent illness. On the other hand, those who always take the somber view of life are so distressed by misfortunes when they come, that physical impairment may result.

The nervous system in the human body is so delicately adjusted that slight disturbances may seriously derange certain of the bodily functions. While at times it may be difficult for the most skillful diagnostician to trace the exact connection between mental depression and physical illness, the fact that they are often intimately related is well known.

Habits of mind, like habits of body, can be cultivated through persistent effort. Cheerfulness is one habit which will not only prove of distinct benefit to its possessor but will serve to stimulate others with whom he comes in contact.

Melancholia and similar serious disturbances may be brought about by permitting the mind to brood upon real or fancied troubles. The line of demarcation between brooding and melancholia becomes more and more indistinct as the brooding goes on.

Therefore, though you do not set up the statute of the God of Mirth in your house, bear ever in mind that "the light heart lives long."

THE ICE BOX.

The ice box is a necessity in hot weather for the proper preservation of milk and meat. Where there are infants and young children in the family the proper care of milk requires ice, in order that it may be kept at a sufficiently low temperature to prevent it from becoming poisonous.

For the proper care of food during hot weather, cleanliness of the vessels and ice box is absolutely essential. The box should be cleaned thoroughly at frequent and regular intervals. The interior should be washed, first with cold water and soap, then rinsed with scalding water. The drainage pipes should be kept free from slime. Where a rubber tube is used to carry off the waste water the tube can be boiled without damaging it.

The ice itself should always be thoroughly washed before being put into the box. Unless there is absolute certainty that the ice is made from filtered water or obtained from a source free from sewage pollution, it should not be placed directly on food or in the drinking water.

Economy and health will both be served by placing the drinking water in a receptacle next to the ice. This will bring it to as low a temperature as is healthful. Iced drinks interfere with digestion and are menacing to health. They often arrest digestive action and not infrequently produce death.

Scrupulous cleanliness will be repaid by the saving in food stuffs and the maintaining of their quality.

CAMP SANITATION.

Every fisherman and every hunter and lover of Nature who turns to camp life, should constitute himself a health officer for his own protection and comfort.

There are certain niceties of camp life which an experienced woodsman does not neglect but the city bred amateur, who is used to daily garbage collections and open plumbing, is apt to lack sufficient ingenuity to properly improvise means to compensate for the lack of these essentials.

Cooking and eating out of doors is attractive if the procedure is not accompanied by swarms of flies, which are sure to appear if the camp wastes are not properly disposed of.

If your camp is near a stream go far enough back to be sure that heavy rains will not wash refuse into it, and then burn the refuse or dig a pit for it. Cover all the wastes which go into it with a sprinkling of chlorinated lime and then with a good covering of earth. This will insure freedom from fly breeding and from noisome odors in the hot weather.

Be careful as to your water supply. If it is from a stream and if there are other camps or dwellings upon it, it is far wiser to boil all that is used for drinking and domestic purposes than to risk the possibility of typhoid fever. If a spring is used, care should be taken that it is not open to contamination from the washing of refuse or other pollutions.

If mosquitoes abound, for the sake of comfort and as a protection against the possibility of malarial infection-screens or netting should be used. If conditions will not permit this, some anti-mosquito wash should be used,—such as oil of citronella. If bitten, a mixture of one part of aqua-ammonia and three parts of spirits of camphor will destroy the poison. All species of mosquitoes are not disease carriers but they are all comfort destroyers.

These precautions are simple enough and if made a part of the regular routine of camp life they will afford reasonable protection to the health of the occupants of the camp and will likewise serve to protect other pleasure seekers along the stream.

MORE HASTE LESS SPEED.

"More haste less speed" is a venerable warning against misapplied energy. The summer season gives additional reason to value rational, well directed activity, rather than spurts of action.

The average city dweller, regardless of years, is apt to scurry about as if life depended upon his catching a particular train or trolley. Rushing to and fro, with small consideration for those who impede his progress, he will risk life and limb in crossing a street to gain thirty seconds and then gaze in a show window for ten minutes.

This is extremely wearing on the nervous system as well as physically exhausting. It readily becomes habit and if continued leads to loss of personal efficiency. A certain degree of deliberation usually insures thoughtful and effective action and is better from the health standpoint.

To progress at moderate speed, with due consideration for other people's "rights of the road," results in benefits of no small value. Your physical machinery is far more likely to meet emergencies successfully if it is not continually running on high gear.

Then too, there is much in our daily round which he who runs may not read. If we are to live rationally and think broadly it is well to proceed through life at a moderate pace. Your scurrying busybody is selfish, even though unintentionally so. To have an eye for other peoples' desires and ambitions and consideration for their ideals, may help us to achieve our own.

To live happily and to live peacefully, aid materially in maintaining our physical health and vice versa. Progress is not necessarily measured by rapidity of action; consider the squirrel in the revolving cage.

DENGERATIVE DISEASES.

Benjamin Franklin said, "Nine men in ten are suicides."

The indifference of individuals to their continued personal welfare, which inspired this remark one hundred and seventy years ago, applies equally today. Conditions have changed since then in many ways and some of the changes are not beneficial for the modern individual.

Carefully calculated statistics show that there has been a steady increase in Bright's Disease and other degenerative diseases incidental to advancing age, within the past few years. Certainly the number of deaths from this cause is sufficiently high to warrant the serious consideration of every individual advancing toward middle life. Of course everyone, now-a-days, is familiar with the doctrine of fresh air, exercise, simplicity of diet, etc., which make up the creed of the sanitarian.

Few are willing to go to the fancied discomfort of denying themselves the pleasure of eating, drinking or indolent ease. To be sure they are perfectly aware that indulgence is unwise. They have been warned by other people's experience and not improbably have been admonished by their medical advisers as to the evil effects of certain favorite indulgences. But the fact that a single gratfication of weakness is not likely to be accompanied by any of the forecasted ill effects, seems to lead the majority of people on, regardless of the ultimate accounting which nature is certain to demand. The way of least resistance seems to be the popular path.

Probably every individual will admit to himself that he is running a risk and that the ultimate outcome will probably prove serious. Nevertheless, continue he will, and so there is more than a modicum of truth in what Poor Richard said.

Self denial and temperance may seem Spartan virtues to the self indulgent but they are worth cultivating if one would challenge Father Time and his grim companion.

ANCIENT WISDOM AND MODERN FOOLISHNESS.

In every age, in every nation, there has been a class of individuals who objected to all innovations, solely on the ground that they were new. Everybody numbers one or more of these objectors among his acquaintances.

Preventive medicine is referred to in these days as a new science, and so it is, but many of the measures used today are hoary with age and have been sanctioned by sanitarians of the dim centuries. The Scriptures hold evidence of this and now and again the historian may mark a passage which adds confirmation.

The care of water supplies is one of the things which the opponents of modern sanitation most frequently belittle and which the public health officials continually recommend. To those bold objectors who blatantly proclaim their superiority to precautionary measures it is interesting to quote from Herodotus "the Father of History," who wrote some twenty-three odd centuries ago of Cyrus the Persian king.

"Cyrus made war against the son of this queen, who bore the name of his father, Labynetus, and had the Empire of Assyria. Now when the great King leads his army in person, he carries with him from home, provisions well prepared and cattle; and he takes with him water from the River Choaspes, which flows past Susa, of which alone and no other, the King drinks. A great number of four wheel carriages, drawn by mules, carry the water of this River, after it has been boiled in silver vessels, and follow him from place to place wherever he marches."

Fortunately the majority of people heed the warnings given when it becomes necessary to boil water from private or public supplies or to take other steps to insure its safety. So long, however, as the dissenters continue their senseless opposition we shall continue to have an unnecessary amount of typhoid, not alone among the individuals who set themselves above the acquired knowledge of scientific investigators but also among the unfortunate people who permit their better judgments to be swayed by the positive assertions of the ignorant.

INDIGESTION.

There is no computation of trouble that dyspeptics have caused in this world. Every school boy can quote you, "yon' Cassius hath a lean and hungry look," and his type has stalked through history and fiction, threatening the peace of individuals and nations.

It is not surprising that the person who suffers from dyspepsia takes a pessimistic view of life. One of the chief functions of the body,—digestion,—is amiss and three times a day the sufferer is apt to be reminded of the fact.

The manifestations of digestive disturbances differ materially. Often enough they are not recognized as such,—in fact in many cases the symptoms show themselves elsewhere than in the digestive organs. Indigestion may result in headache, defective sight, heart burn, dizziness or in other ways which continually recur or vary from time to time.

In the earlier stages indigestion may only manifest itself in a general feeling of discomfort. The causes are numerous; hasty eating, the indulgence in ill chosen foods, iced drinks, eating when exhausted, or some functional disorder of one of the digestive organs.

Care as to the diet, sufficient time for meals, regularity in eating and care to avoid overloading the stomach when tired, are things which should be observed by those who would avoid indigestion.

The causes of indigestion are sometimes so obscure that the best medical skill should be called in to determine them. The use of home remedies and patent medicines may consume valuable time that should have been devoted to more rational treatment;—all to the permanent detriment of the patient.

MIDDLE AGE.

For all that has been said to the contrary, this is the middle aged man's day. You can talk of the early recognition of competence, of youthful success and what does it all mean but that a man reaches middle age with more years of successful endeavor behind him.

A generation or so ago a business man who devoted himself assiduously to golf or tennis would probably have lost his credit at the banks and would have been looked at askance by his business associates. Now-a-days there are thousands of successful middle-aged business men who regularly devote a certain portion of their time to rational exercise.

This is fortunate as conditions have changed; our cities have increased in size and the environment of business is more restricted. Our grandfathers had much open air life thrust upon them; today it must be sought.

Cheeks bronzed from exercise in the open air stamp many a middle aged man as a devotee of rational sports. College athletics are probably responsible for a share of this improvement and public health teaching and a struggle for individual efficiency account for the balance.

The man who has succeeded young is perhaps more jealous of his physical powers than one who has plodded on to a middle aged realization of his hopes.

Today there is a movement for temperance on the part of unnumbered thousands of middle aged men. Temperance in eating, in the use of alcohol and a rational indulgence in exercise which will keep up the physical poise. There are hundreds of country clubs today where there was one, twenty-five years ago, and it is the middle aged men, and not the youngsters, who most persistently frequent them. It is well that this is a growing movement for it will aid in off-setting the increasing mortality from degenerative diseases.

The pressure for life and the struggle for existence is growing keener and it behooves the man who has reached the noon-day of life to give serious consideration to his physical well-being, if he wishes to hold his place in the harness.

COLLEGE ATHLETICS.

Many a boy or girl entering college not only dreams of success as a student, but is anxious to gain recognition for athletic achievements.

To warn the young is like casting water on burning oil. Yet it were well for the students who contemplate severe training to seriously consider, as far as possible, their probable occupation through life and if it is to be a sedentary one they should refrain from hard competitive athletics. Such athletics develop the muscles to a degree that cannot be kept up by the successful lawyer, doctor, teacher, or average business person.

Over-training in youth is almost certain to result in physical deterioration in after years. The full value of athletics is obtained by the individual who achieves a rational, all round development. Such training is far more apt to stimulate one to continue in after ilfe those athletic exercises which are available to the business and professional man or woman.

No occupation should prevent the student or the professional man from taking a reasonable amount of out-door exercise daily. If nothing else is available a good swinging walk,—say five miles a day in the open air—will always prove beneficial, not only during youth but in middle age or more advanced years.

The young woman who goes in for athletics should be particularly careful. If indulged in to a reasonable extent, under the supervision of a properly trained director of athletics, exercises and sports not too violent in character will be beneficial.

Over-exertion is apt to invite a serious penalty in either sex, but it is perhaps more harmful for women than men.

The fact should be kept in mind that exercise is a means to an end, and—properly indulged in—it should stimulate the body and re-act healthily on the processes of the brain.

For the college man or woman this is the practical side of athletics and the one which should be kept in mind.

PRUDISH PARENTS.

There are certain stages in the life of every boy and girl when the confidence and advice of father and mother may prove of inestimable value. If parents have not cultivated confidential relationship with their children, which will enable them to discuss the problems which budding manhood and womanhood bring, they have fallen far short of performing their duty.

The evasions, lies and prudish attitudes of parents have been responsible for mistakes resulting in agony of soul and body for innumerable growing boys and girls.

There is no period in life when children are more sensitive to influence for good and evil than in this formative stage. It is not fair to expect your children to come to you with those things which they are perfectly well aware you have avoided discussing in every possible way. They will accept and seek information from other sources if they cannot get it from their parents; the chances are a hundred to one that they will get misinformation and injurious lies from companions with a distorted moral code.

If you do not feel competent to discuss these matters with your children, in a manner which will give them a thorough and full understanding of the responsibilities and functions of manhood and womanhood, it is better to admit it and to arrange for your family physician to talk the matter over with them fully.

This is far from being as satisfactory, however, as being yourself fully informed regarding the problems which your children have to solve. Encourage them to come to you with the doubts and questions which they are certain to have.

Ignorance by no means implies innocence. Confidence and earnest high-mindedness alone will beget their like from your children. If you never discuss the problems of sex which every healthy boy and girl has forced upon them by nature, you may be certain they will return the reticence in kind. They are certain to seek information somewhere. If you do not give them the truth, frankly and willingly, they will accept what they can pick up from questionable sources.

MIDNIGHT OIL.

Our barnyards have not yet had electric lights installed, so the domestic animals still go to bed at dark.

In these days when every village boasts of it's electric light plant and the streets of even our small municipalities are ablaze with light, night is,—for all practical purposes,—as light as day and the primitive instinct to seek shelter and repose with the falling darkness has been lost to civilized mankind.

The modern tendency seems to be to shorten the hours of work and extend the hours of play into those that in the cosmic scheme of things were intended by nature for rest. While there is little truth in the old saying than "an hour's rest before mid-night is worth two thereafter," there is danger that extending pleasure and entertainment to late hours of the night will breed an irregularity of habit which is apt to lead to unusual exhaustion, for which the ordinary allotment of sleep will not compensate.

Fortunately, the majority of us in this world have a considerable amount of work to do each day. If we keep late hours at night the tendency is to expend our energy on pleasure instead of the real business of life.

Daylight is the best time for physical work or brain work. The early morning hours beat the midnight oil game for the student and scholar. The great majority of authors do their work in the morning.

Poor Richard says that "he who risketh late must trot all day." The midnight hours, no matter how brilliantly illuminated, are a poor exchange for those of the early morning.

LITTLE THINGS THAT COUNT.

Every youngster is familiar with the story of how a tea kettle suggested the steam engine. It is one of thousands of examples of little things that count. Of course, the tendency is to overlook small matters and to sneer at their importance. This is true in regard to our health as well as the other business of life. There are certain habits which everybody overlooks because they are so common and yet these trifles may have a very decided influence at times.

Millions of people moisten postage stamps with their tongue every day. These may have been shoved across a soiled counter or torn off with dirty hands an instant before, but unfortunately a habit,—plus convenience,—impels most people to the custom of affixing them in this manner.

Another seemingly trifling habit which may readily lead to trouble is that of ripping open with the fingers, letters that have been sealed with mucilage plus saliva.

In view of the fact that there are thousands of sufferers from tuberculosis and other communicable diseases, these seemingly insignificant acts are really fraught with danger. Our mouths are perhaps the chief gateways by which the germs of disease enter the system and our hands are the principal means of carrying them there. Watch, for a few minutes, one who is thinking or writing and observe how often his fingers are carried to the face. If they are not clean they are almost certain to carry germs to the mouth. Once there, decayed or unclean teeth furnish splendid breeding grounds and gateways of infection.

Children in school chew their pencils and often exchange them, (unless they are warned against it), and thus chew someone else's pencils. Many people wet their fingers with their tongues to turn the pages of books and despite all that has been said and written by health authorities about paper money carrying disease germs, they resort to this method of counting bills.

These are such simple things that unthinkingly you may sneer at them as of insufficient importance to warrant care. For all that, they are precautions worth observing and it is well to cultivate a certain fastidiousness and to err on the side of scrupulous cleanliness. It is little things that count.

CHEAP TRANSPORTATION A FACTOR IN HEALTH.

Upon the health of the generation to come, depends the prosperity of the nation. Nature made us rich with coal, oil, lumber and fertile lands. These natural resources are fast becoming exhausted. We have spent our principal as if it were income and the time fast approaches when we must live on those things which we produce by labor.

As the economic struggle becomes keener the strain upon the individual grows greater. The rapid development of our cities and the concentration of population,—in surroundings which are in many ways detrimental to health and which deviate so materially from those natural conditions for which a man is accustomed by nature,—have a weakening tendency.

The closely built up portions of our cities prevent the free movement of fresh air. The conditions of employment are largely affected and there is a tendency away from the natural methods of life which make for good health. To remain where we now stand in the scale of industry and morals, we must work for the proper housing and amusement of the workers.

As transportation made cities possible, so it must be and is being developed to carry the people into the suburbs at small cost. Here city workers' families may have individual homes with fresh air and here they can raise a few vegetables and flowers. The germinating seeds, the development of plants, the eternal miracle of Nature's reproductive powers, offer wholesome occupation of interest to most men and women. As an amusement it is as much fun as playing golf and tennis and at the same time it brings an income instead of being an expense. Such occupation may not be fashionable, but it has a deep appeal to the majority of mankind.

SENDING SICK CHILDREN TO SCHOOL.

A day spent in school by a half-sick child may result in a week of serious illness. If,—as so often happens,—the slight indisposition proves to be the beginning of some communicable disease, the other children in the school are exposed and those who are susceptible will follow in turn.

School authorities are naturally anxious to secure regularity of attendance on the part of the scholars and many parents feel that they are simply doing their duty in forcing children who complain of not feeling well, to go to school. It is much better for a child to lose an occasional day's schooling than to risk bringing on an illness and exposing others.

Children's recuperative powers, generally speaking, are superior to those of older people. Proper rest and care will often ward off serious illness but this requires care and insight on the part of the parents, as the children themselves are not apt to call attention to their condition until they become seriously ill.

Loss of appetite, feverishness, lassitude and discoloration of the eyes are all indications which should be regarded as symptoms of indisposition.

The work which children lose in the schools from sickness can be made up far more readily than that lost in health. Satisfactory mental progress cannot be made unless health is first considered. School authorities should realize that the total amount of time lost is far greater, if the added possibility of spreading communicable disease by half-sick children in school be considered.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercle Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March.	1913.	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913.	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913.	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March.	1914.	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469.000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77.	Jan.,	1916,	The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78.	Feb.,	1916,	The Sanitary Index. A. Method of Measuring Public Health Work.
79.	March,	1916,	Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80,	April,	1916,	Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81,	May,	1916,	The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82.	June,	1916,	Fifteen Little Talks on Health and Hygiene.
83.	July,	1916,	Fifteen Little Talks on Health and Hygiene.
84.	Aug.,	1916,	Fifteen Little Talks on Health and Hygiene.
85.	Sept.,	1916,	Fifteen Little Talks on Health and Hygiene.
86.	Oct.,	1916,	Fifteen Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 87. HARRISBURG, PA. NOVEMBER, 1916

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public has been kept in mind in this presentation.

HEALTH AND BEAUTY OF THE SKIN.

Few people pay sufficient attention to the care of the skin. A certain number, of both sexes, devote considerable time and energy to the care of that portion which appears above their collars, but few understand the real importance of the functions of the skin.

We breathe through the skin. A considerable volume of oxygen is absorbed by the body in this way. Certain poisonous substances are disposed of through the pores of the skin, passing off in perspiration.

The skin is one of the body's thermostats that automatically regulates its temperature. If the heat grows excessive the blood vessels in the skin dilate and permit the circulation of an increased amount of blood near the surface. This permits the radiation of heat from the blood and a corresponding cooling of the body.

When the body is exposed to cold the blood vessels contract and drive the blood away from the skin, to concentrate its warmth near the vital organs.

The ends of the nerves which give us our sense of touch are located in the skin. This sensibility is provided for the continual protection of the body. In order that these various functions may be properly carried out, it is essential that the skin be well cared for at all times. If the pores are not kept thoroughly clean, the poisonous excretions are re-absorbed by the blood instead of being expelled. Such a condition also prevents the skin from absorbing oxygen, as it should do.

Then, too, there is the question of beauty. A clean, healthy, well groomed skin is genuinely attractive.

Soap and water should be applied vigorously but no soap should be left on the skin after bathing. Sleep and exercise in fresh air, combined with good food and plenty of water, are better than all skin food and beautifiers and their consistent and regular use will add materially to the general health and bodily well being.

THE MEDICINE HABIT.

Many a man who would resent the efforts of a blacksmith to repair his piano, will accept the advice of his next door neighbor who urges some favorite remedy for an ailment whose nature is by no means certain. He will consume innumerable bottles of "medicine" which are accompanied by guarantees that no reputable physician would think of making.

The human body is so much more delicate in its construction than any mechanical device ever invented, that it is not only absurd but extremely dangerous to run the risk of upsetting the functions of the various organs by using preparations of which one has no accurate knowledge.

There is another draw-back to self medication. The diagnosis of disease is a matter which requires skill and training of the highest kind. The symptoms of various disturbances in the human economy may manifest themselves by distress in some part of the body entirely separated from the seat of the difficulty. As an example already cited, indigestion is often the cause of headache. Such symptoms can only be properly related to the cause by one who is skilled in diagnosis.

The tendency of modern medicine is toward prevention and the present day physician makes far less use of drugs than did his predecessors. Despite this fact, it has been estimated that the people of the United States spend some $500,000,000 a year for medicine,—most of which is not prescribed by physicians. We consume more drugs than any other people in the world.

The individual who has an ailment which seems to necessitate the continued use of drugs should, for his own welfare and safety, consult a physician of ability and skill.

DIPHTHERIA ANTITOXIN.

There are few absolute specifics known to medical science. In dealing with the majority of ailments to which mankind is heir, the wise physician is he who studies his case with the idea of eliminating those things which hamper the operation of natural functions and thus gives Nature every chance to restore the balance.

One of the few specific remedies that science has produced, upon which the physician may depend to effect a cure, is diphtheria antitoxin. Despite its common use in neutralizing the poison of this disease, few people realize how great a boon to mankind this discovery is. Within the memory of many physicians practicing today, diphtheria was a disease before which the members of the profession were practically helpless. Thousands of young lives were sacrificed and whole communities were overcast by the shadow of death following epidemics of this disease. Without the use of antitoxin the death rate from diphtheria often exceeds 40 per cent. When diphtheria antitoxin is used in sufficient quantities immediately after the onset of the disease, prompt recovery follows, with few exceptions. Unfortunately, one of the first evidences of diphtheria is sore throat which may appear to parents to be due to a slight cold. If it is really the onset of diphtheria, the disease develops with terrifying rapidity into the more advanced stages. For this reason every case of sore throat among children should be watched with the greatest care and medical attention with a laboratory diagnosis should be sought.

The compiled records of the State Department of Health show the results of the treatment of thousands of cases. They prove that deaths from this disease, after the treatment with antitoxin, occur only when there has been delay in administering it. From a death rate of zero on the first day, it increases to 5 per cent on the second day, 12½ per cent on the third day, 22 per cent on the fourth day, and 39 per cent on the fifth day. Antitoxin may be administered in enormous doses without danger. Cases are on record in the Department where 185,000 units have been required to effect a cure in an individual case.

Diphtheria antitoxin is not only a curative agent but it is also a preventive and it should be used in immunizing doses to prevent the spread of the disease among those who have been exposed to it.

With this wonderful specific at the command of the medical profession there should be few deaths from diphtheria. The deaths occurring, in the great majority of cases, are due to the fact that the early symptoms have been overlooked or neglected by parents, resulting in delay in securing prompt antitoxin treatment.

OLD AGE.

"The gray-beard sighs, shaking his hoary head,
Compares times that are now, with times past heretofore,
Praises the fortunes of his father long since dead;
And croaks of ancient men whose honesty was more."

Thus did a Roman poet describe the characteristics of old age, nineteen hundred odd years ago.

Those who wish to remain young would do well to consider these lines and to guard against such an attitude of mind. The fountain of perennial youth is in the spirit. If you would arm yourself against the stealthily advancing years, cultivate the habit of looking continually forward. For the man who keeps his eyes fixed ahead and struggles onward to some worthy goal, the years speed by unnoticed. For him who turns and walks backward, looking ever in the past, the future holds no promise and the stimulus of the shoulder-to-shoulder touch with the on-pressing, younger generation is lost.

The future is built upon the ruins of the past. Advancing years should bring ability to concentrate and an experience which will compensate in no small degree for lack of physical power.

"At thirty, man suspects himself a fool, knows it at forty, and reforms his plan; at fifty chides his infamous delay, pushes his prudent purpose to resolve"—and if he be wise, makes use of such experience as he may have piled up along the road of life and pushes his purpose home.

Moderation of habit and attention to the rules of hygiene will help materially to make the years sit lightly, but this alone is of little value if we are without ambition and live only from day to day.

When the idols of youth are broken we must set up new and better ones.

Ambition we must have—and work as well—if we would laugh at Father Time.

INDOLENCE.

It has been said that the crime which Nature never forgets is indolence. It is certain that our bodies were never planned for idleness. Good health is invariably the result of a continued and rational exercising of both bodies and minds.

Whenever we fail to exercise them for a period of time they are apt to degenerate. Not infrequently, owing to the inter-relationship of the various parts of the complex human machinery, this results in the impairment of one part and reflects upon the others.

The complications of modern life are very apt to force us into restricted spheres where it requires thought and intelligence to keep mind and body in good condition.

The normal man or women is endowed with a brain capable of development along various lines. To promote this development along a single line creates one-sidedness which may readily become an abnormality.

There has never before been a time when opportunities were so great for those who desire to broaden their horizons and to cultivate interests aside from those forced upon them by particular trades or occupations. Not to have interest and occupation in a world teeming with opportunities and possibilities, is to make admission of stupidity and sloth.

Fads of one sort or another may not seem worthy of comparison with the more serious employments of life; nevertheless they may serve those who have been relieved of the necessity of labor and in lieu of better occupation may prevent degeneration of mind and body. To be occupied with trifles is better than not to be occupied at all.

To devote one's self to tasks which require concentration and combined effort of mind and body, stimulates a rational development and goes far toward keeping us sane and healthy.

THE WEAKEST LINK.

Do you know which is the weakest link in your chain of life? Is it heart, lungs, digestion or nerves? Which of the various organs and functions of the body seems to threaten trouble? The chances are that, unless you have recently had a thorough physical examination, you could not tell, for symptoms are misleading and oftentimes indicate that the trouble is located in some other organ than the one which is the actual seat of the ailment.

If there is a "knock" in the engine of your automobile you are the first to desire an over-hauling, to rectify the trouble. You know that if a mechanical defect of this sort continues it will multiply the trouble before long. That is just what happens with the human mechanism.

It is well known by the medical profession that those suffering from organic complaints may often,—through vigorous adherence to certain rational methods of living,—recover sufficiently to live long and useful lives while those suffering from functional disorders may entirely recover their health by following out the instructions of able medical men.

Anyone suffering from persistent colds, headaches or pains, should consult a good physician and submit himself to a thorough physical examination. It would be well for everyone to be examined once a year. This should include an examination of the blood-vessels, blood, heart, lungs, kidneys, a consideration of weight in relation to height and a study of the general activities of the various organs.

An examination superficially made is of no value. It should be thorough and the daily routine and habits of the individual should be carefully considered in relation to his physical condition.

Ordinarily, men are obliged to submit to a medical examination now and then when taking out life insurance. Women are not insured so often and hence, under ordinary circumstances, are more apt to escape physical examiations. These examinations are equally essential to both.

CLEAN MILK.

Not many years ago everybody kept a cow. Now-a-days the city dweller's milk may have been hauled across two or three States before the milk bottle finally comes to rest upon the door step.

Dirty dairies and unclean handling is far too common. In the majority of small communities there is little or no supervision of dairy farms and dealers.

As a result milk is aften the agent by which disease is transmitted. Typhoid fever, septic sore threat, scarlet fever, diphtheria, and other communicable diseases can readily be spread along the milk man's route. This is particularly true where the insanitary practice of filling the empty bottles which have been set out by customers, is followed. Delivering these bottles at other houses, instead of taking them back to the dairy for proper cleansing and sterilization, is criminal.

There are many instances on record where extensive typhoid epidemics have been traced to this practice.

Where city milk supplies are obtained from a wide spread territory, covering several States, inspection of the individual dairy farm becomes almost impossible and pasteurization offers the only effective method of protection to insure milk reasonably free from disease germs. This does not necessarily mean clean milk.

Milk produced in States where the dairy farms are efficiently supervised by State inspectors is to be preferred, if the cleanliness of the raw milk is assured.

Every act in the handling of milk and the care of the dairy stock is important. If an absolutely clean supply is to be assured we must have healthy cattle properly cared for, cleanliness in milking and in the handling of the milk, and the maintenance of proper temperature from the time it is brought in by the milker until it is consumed.

STUFFY SCHOOL ROOMS.

If it were possible to make all of our schools open air schools, it would unquestionably be of benefit to the pupils. Mind and body would both develop more advantageously. Conditions forbid this but that is no reason why school rooms should be turned into closed ovens with the onset of cooler weather.

Thousands of our school rooms depend upon some direct method of heating, with no special ventilation apparatus provided for the admission of pure air. Temperature is too often the sole factor considered by the teacher, who forgets that dry, vitiated air reacts unfavorably on the health of the pupils.

A pan of water should be used on the stove to insure the evaporation of a sufficient amount of water to increase the humidity. This will make a low temperature more comfortable than one of a higher degree of heat without the moisture.

Frequent flushings of the air in school rooms by opening the windows, with calisthenic exercises for the pupils, will prove effective and stimulating procedures. The time so taken will be more than compensated for by quickened activities of both pupils and teacher.

Window boards, which permit the admission of air between the top and bottom sash, can be secured at slight expense. Cleanliness of the air is as important as clean water and foodstuffs.

There is no reason why children should not be permitted to wear their wraps in school if the temperature is somewhat low. This is the rule in open air schools and it in no way interferes with the school work. When the children leave the school their vigorous action makes up for the difference in temperature between indoors and outdoors.

A teacher who understands the rudiments of hygiene can add immeasurably to the well being of the children and accomplish much in giving them proper ideas of the value of healthful and cleanly living.

Personal hygiene is not a fad. The Greeks taught it three thousand years ago, as an essential in the up-building of a vigorous nation.

The want of health measures and over attention to the three R's often brings the child to an early grave.

COOKING.

Since our primitive ancestors squatted around the cooking pots after hunts for foodstuff, an inconceivable amount of effort has been expended in the practice of the art of preparing food. Considering the energy spent in experimentation, the accumulated knowledge is not extensive.

Every member of the human race, from early childhood to the grave, now depends principally upon cooked food to maintain life.

It is not without reason that cookery is called an art. There is nothing which does more to build up and maintain good health than the proper preparation of food. It may be considered the first essential. Cooking is commonly considered a menial task, yet next to motherhood it is one of the most important.

Thanks to modern methods of transportation and commercial enterprise, there has never before been a time in the history of mankind when so vast a selection of foodstuffs was at the disposal of all people. This should prove a large asset to the race, for a variety of foods, well prepared, serves to give a well balanced nourishment, conducive to proper growth and sustenance of body and brain.

Improperly cooked foods lead to distress of body and mind more quickly than almost any other thing. Poverty, unhappiness and dissipation can in many instances be traced to poor cooking.

Among the least expensive foods we may find those which form a nourishing and tasteful diet. With the necessity for economy becoming more pressing, as the population of the world increases, there is no one line of effort better worthy of study and attention than the science of economical and wholesome cookery—for man is indeed what he eats.

DANGERS OF CROWDED CARS.

The street and railroad cars have neither sufficient air space nor ventilation to permit of the carrying of more passengers than they can seat. The over-crowding of our passenger transporation vehicles is an important factor in spreading the grippe and the so-called colds that have terminated so seriously of late for the old and young.

If we did not stay up so late at night we might breakfast earlier and walk to and from our places of work. Every healthy man and woman leading a sedentary life should walk several miles a day in the open air, assuming an erect carriage and swinging the arms freely.

We can go for days without food and water but the moment air is cut off from our lungs we begin to struggle for that life giving element. If it is not restored the person dies in minutes instead of days. From this observation we may get a true measure of the relative importance of air to life.

To maintain health we must breathe air that has not just been robbed of its oxygen by reason of another person having used it. We must breathe air free from poison given off from the bodies of those crowded in poorly ventilated places and particularly must we avoid air loaded with germs of grippe, tuberculosis, pneumonia and other diseases.

When compelled to submit to the evils of crowded civilization during grippe and pneumonia seasons, it is well to have your doctor give you a prescription for a good disinfectant solution with which to rinse the mouth, nose and throat several times daily.

It has been demonstrated that there are many pneumonia germs in the mouths of those suffering from the grippe.

A DAY IN BED.

There are times when everyone realizes that he is on the verge of an illness. The symptoms vary according to the individual case but whether it be a cold, grippe, or exhaustion, Nature usually has a way of sounding a warning which is not to be mistaken.

When danger signals are displayed in this fashion for our benefit there is one course of action which will often prove effective, even at the eleventh hour. A day in bed, in a well ventilated room, with an extremely light diet, is frequently sufficient to save one from severe illness.

Rest is one of Nature's simplest and most effective aids to healing and if taken in time it may be warranted far superior in therapeutic effect to any quantity of drugs taken after the damage is done.

An extremely light diet, or a fast for twenty-four hours, serves the same purpose in giving the digestive organs a needed rest under such conditions. A day or so in bed, adhering to the resolve not to allow the ordinary annoyances and responsibilities of life to interfere with one's complete relaxation, would often be more valuable than travel over long distances for a change of climate.

There are some people who boast of their ability to keep going, regardless of the warnings which Nature serves in times of danger. At times they may avoid the penalty but they usually have to "pay the piper." Better a short voluntary rest, now and then, than a long one enforced by a profound disturbance of health, the result of disregarding Nature's warning.

OUT-DOOR SLEEPING.

That which is looked upon as a fad today becomes the necessity of tomorrow. This is largely the case with out-door sleeping.

With the beginning of the active campaign against tuberculosis, but a few years ago, out-door sleeping was recommended for those suffering from tuberculosis and for others whose general physical condition seemed to warrant it.

These pioneers were looked upon with interest by their friends and neighbors who openly expressed belief that if they survived the exposure (which was doubtful), they would soon tire of the experiment. As a matter of fact, there are a hundred open air sleepers today where there was one a decade ago and the habit is no longer limited to those who are in ill health.

All who have tried open air sleeping are enthusiastic about it and they constitute an ever growing group.

A sleeping porch is coming to be looked upon as an essential part of the home. Whole families have taken to sleeping in the open and have been so benefited by it that they would never again consider any other plan.

Proper garb to insure warmth despite the temperature, is essential. With an accessible warm room for dressing there is no reason why this invigorating and stimulating custom should not continue to grow in popularity.

Many men and women, who of necessity must spend their working hours in-doors, can obtain during their rest at night at least a portion of the out-door air that Nature intended all of us to have.

Sleeping porches can be constructed on the most modest homes at comparatively small cost and in the majority of instances they can be guaranteed to save their cost in doctor bills. The change from sleeping in closed. warm rooms to out-door sleeping must be brought about gradually, giving Nature time to meet the new conditions. The very old or very young demand more protection than the adult in the prime of life.

NATURE'S ENDOWMENTS.

Many people make the error of looking upon health as a crude possession that Nature bestows now and again in defiance of her own laws. True, from time to time, we meet splendid specimens of manhood and womanhood who apparently resist unusual hardships in an environment which would not seem conducive to good health but in Nature nothing thrives, in the long run, for which proper conditions are not provided.

Every violation of the laws of Nature makes an impression on the vitality of man, who loses his resistance at every blow until the injury is so great that it becomes manifest to our grosser senses.

The maintenance of health is today based upon both science and art. Fortunately it is within the reach of the vast majority of our people and the man or woman who realizes the value of self control has learned the first principle.

Appreciation of the things most worth while never comes from an excessive indulgence. A rational life is fairly certain to be an important factor in health and happiness. Many a man or women whom Nature has endowed with an unimpressive physique has cultivated and maintained a degree of bodily health sufficient to insure to him a rational and pleasurable life. On the other hand, many a physical giant has so presumed upon Nature's endowment as to wreck that most precious of gifts—a good constitution.

WHO IS MY NEIGHBOR?

Few people would willingly jeopardize the life and health of a fellow being. Yet many people who would emphatically deny intentionally doing harm, will endeavor to evade rational restrictions necescary for the protection of others.

In the enforcement of laws for the protection of the public health, numerous instances occur which show how the innocent are made to suffer for the carelessness of others. Rather than undergo a temporary restriction of their usual activities, people will often expose others to communicable diseases,—for instance scarlet fever.

Parents in particular will often assume responsibility in exposing their own and other people's children which would make them shudder if they appreciated the true seriousness of it.

Measles, whooping cough and a number of the common ailments of childhood are looked upon as inevitable by people who are ignorant of the dangers of these diseases and the possibility of avoiding them.

It is a crime to willingly expose children to disease because of the belief that they will eventually fall a victim to it. The old idea that the diseases of childhood are doubly serious to an adult is untrue. An occasional mild case of a disease in one instance may be responsible for a serious and fatal illness from this same disease, if it is communicated to another, at any age.

COURAGE.

Every doctor is continually finding patients with serious ailments which have been neglected until the possibilities of cure are greatly reduced or entirely lost.

Want of courage and not the lack of knowledge that there is something radically wrong with them, has in the majority of instances kept these patients from seeking a physician's aid.

This is but one of many examples which might be cited to show how essential courage is to health. It is usually want of moral courage which leads a man to continue to drink when he is perfectly aware that alcoholic stimulants are breaking him down physically and mentally.

Then again, every physician meets in his practice men and women who go into a blue funk over the most trivial ailment. Often enough these people worry themselves until they arrive at that state of mental and physical depression which makes them ready prey for disease.

Unquestionably, there are many dangers to health which we must meet every day of our lives. It is well to know of these things in order that we may form the habit of avoiding as many of them as possible but to be ever fearful, thinking of and cringing from danger, will not aid us to avoid it.

The brave man is he who, knowing his enemy's strength, is watchful, vigilant, but not fearful.

"Cowards die many times before their deaths;
The valiant never tastes of death but once."

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev. Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A. Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80, April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81, May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916, Fifteen Little Talks on Health and Hygiene.
85. Sept., 1916, Fifteen Little Talks on Health and Hygiene.
86. Oct., 1916, Fifteen Little Talks on Health and Hygiene.
87. Nov., 1916, Fifteen Little Talks on Health and Hygiene.
88. Dec., 1916, Fifteen Little Talks on Health and Hygiene.
89. Jan., 1917, Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 88. HARRISBURG, PA. DECEMBER, 1916

FIFTEEN LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These litle chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public has been kept in mind in this presentation.

SUNLIGHT.

Sunshine is an absolute necessity for the vast majority of plants. They cannot grow and thrive without it. It is of almost equal importance to human beings, though comparatively few people recognize the fact.

When we walk into a house where the sun streams in and brightens everything, we say instinctively, "What a cheerful place!" The stimulating effects of sunshine are difficult to measure but they are nevertheless potent factors in maintaining our physical and mental health.

It has been said that suicides are more prevalent following periods of rainy and depressing weather and statistics have been advanced to show that they are more common among people who have rooms with a northern exposure lacking sunlight.

We all know how the spirits are depressed by a succession of rainy days, but we lack a full appreciation of the exalting value of sunlight in our homes.

The germs of tuberculosis, for example, will not survive for any length of time when exposed to the sun's rays. It is a mistake to so protect our windows with shutters or curtains as to exclude the maximum of sunlight.

This is especially true in the Fall and Winter, when the days are short, but at all seasons of the year sunlight is invigorating and stimulating and almost as necessary as fresh air.

The planting of trees so close to houses as to shut off the sun's rays, is a mistake from a health standpoint.

Sun baths are beneficial in stimulating the functions of the skin, sometimes to a degree which enables the body to resist minor ailments.

WINDOWS AND WEATHER.

Does your bedroom window drop with the mercury? Do the window openings that cannot be too wide in the summer time gradually narrow down to an inch or two as the winter season approaches? Do you think that your need for fresh air diminishes with the arrival of the first cold wave? If so, you are greatly mistaken.

If the thought of wide open windows in zero weather is appalling, pluck up courage and try a small dose at first. You will find that it is far better to spend more money for blankets and comfortables than to incur doctor bills and bills for medicine. Eight hours of sleep in cool, fresh, invigorating air is a better stimulant than anything that comes in bottles, no matter what may be the claims on the labels.

It may be that your daily business commands your presence in stuffy, overheated workrooms or offices where the regulation of the temperature is not within your individual control. It may be that your fellow workers or employers are not wise enough to appreciate the value, from a business standpoint, of good ventilation in the workroom. If it is your misfortune to be so confined, try and make up for it by giving yourself the maximum amount of ventilation during the hours of sleep.

Night is the time for mental and physical up-building. It is impossible to purify the blood properly with used air. It is quite as necessary to bathe the blood with clear air while it is passing through the lungs as to bathe your body with clean water.

Sleeping with windows open the year around, is a matter of habit and of bed clothes. Nature intended us to have fresh air to breathe both day and night. If you have any lingering memories of the old wives' tale that night air is injurious, put it aside. This, like many another "old saying," has no foundation in fact.

SPREADING COLDS.

This is the season when colds seem to be well nigh universal complaints. If you have been fortunate enough to escape, your neighbor has not. There are numerous factors which are responsible for the spread of colds at this period of the year. As in many other infectious diseases, one may be exposed frequently without any serious result.

There are simple congestive colds from exposure yet many conditions commonly called colds are caused by germs. Probably one of the most common methods of spreading these so-called colds is through the carelessness of those who are sick with the infectious condition and who are careless in handling their handkerchiefs. They sneeze and cough when near others, without covering their mouths and noses to prevent spraying the droplets that are often filled with thousands of infective germs.

It is a common thing for a cold to go through an entire family. This is usually the result of carelessness in coming too closely in contact with the sick or in handling articles that have been infected by the patient. If the patient can remain in bed in a well ventilated room and if the discharges from the nose and throat are properly disposed of, there is little or no danger of transmitting a cold to other members of the family. As a rule this also greatly reduces the chance of becoming severely ill and saves time in the end. It is well to use cheese cloth or paper in place of ordinary handkerchiefs because they may be burned after use.

If the usual symptoms of colds are aggravated in character, a physician should be sent for immediately, as the line between the severe "cold in the chest" and pneumonia is delicately drawn. If a cold is permitted to hang on it easily becomes a predisposing factor to more serious ailments, tuberculosis in particular.

GAINING WEIGHT VS. LOSING WEIGHT.

If people were as much distressed about the sudden reduction in their weights as they are over an addition of a few pounds avoirdupois, the human race would be better off.

Vanity, unfortunately, does not lead the average individual to look upon slenderness of figure as objectionable. If it did, thousands of cases of tuberculosis might be discovered in their incipiency.

One of the early symptoms of tuberculosis is loss of weight. Any decided decrease should be watched with suspicion. It often means that the general bodily functions are not all that they should be. Under any circumstances it indicates that one's physical resistance is being lowered, which in itself opens the way to unusual susceptibility to disease.

If this loss in weight is accompanied by failure of appetite, night sweats, or persistent coughs or colds, a physician should be consulted and nourishing food, plenty of rest, long hours of sleep in the fresh air and such other measures as he may advise should be adopted, in an effort to build up the body.

An excess of weight, particularly when it means an increase of girth, is also a danger sign. However, most people who wear rubber jackets, diet and resort to violent exercise to reduce weight, do so from vanity. They will neglect themselves for months when decreasing weight should warn them, as surely as the falling barometer denotes a coming storm, that their physical well-being is in jeopardy.

OVERDRAWING YOUR HEALTH ACCOUNT.

We are all more or less familiar with the strict rules of banks in regard to individual credit. We do not expect to be permitted to overdraw our accounts. But the majority of us expect more liberal treatment with our drafts on the Bank of Health. Overdrafts, promises to pay and notes of hand are given with a prodigal spirit, and we growl mightily, if called to account by Mother Nature for extravagance.

Every one begins life with a certain amount of capital in the way of health and resistance to disease. This capital varies in different individuals, according to the physique inherited from parents and the environment provided. We start life as men and women with this variable amount of capital to our credit. When it is fully expended we are through.

Every dissipation and illness which means the expenditure of physical energy withdraws just so much from the health account. It is common enough to hear people who have been ill speak of being "Cured" but physicians are well aware that this term is a relative one. Every serious illness leaves an imprint upon the system and even though no decided change is felt by the individual, there is invariably some decrease of the normal resistance.

It is so with exhaustion from excesses or from physical and mental strain as well. If you subject yourself to these trials or undergo them involuntarily you may recuperate after a period of rest. However, under repeated strain this recuperation will be slower and slower and eventually the overstrained machinery will break down. For this reason it behooves everyone to exercise reasonable caution and restraint in eating and in the expenditure of physical and mental energy. Remember that the doctor cannot repair that which is already lost.

Expend your energies with discretion and keep the balance of your health account as large as possible.

PNEUMONIA.

Winter is the season when pneumonia becomes the chief ally of death and slaughters thousands. It's greatest toll is exacted during the changeable weather when winter sets in and in the Spring.

Pneumonia is a germ disease; the minute organism which causes it is called the "pneumococcus." The disease is contagious to a certain extent. However, the germs are some times found in the throats of perfectly healthy persons. When the bodily resistance of the individual becomes lowered through physical exhaustion and when this is followed by exposure in poorly ventilated rooms, offices, crowded street cars, local railroad trains or ill-ventilated theatres, pneumonia is apt to result.

Cold itself is not directly a factor. In the Arctic regions the germs does not exist in the pure frigid atmosphere. This points directly to one of the means of avoiding the disease. Seek fresh air, for pneumonia is principally found where it is forbidden. Work and sleep with the windows open.

Men have more of a predisposition to pneumonia than women because of the additional exposure to impure air and the hardships which they endure. Alcoholism is a factor in many cases. The man who indulges in much alcohol is apt to reduce his power of resistance and thereby become susceptible.

Great fatigue should be avoided, if possible, for it is a factor in lessening the natural resistance to pneumonia and other diseases. If you are exposed to rough weather and become wet and cold, take a rub down with a coarse towel and change into dry clothing. Above all avoid stuffy ill-ventilated places where crowds congregate.

Many people seem to find it impossible to follow this advice, especially at the season of the year when the holiday rush is on. Because it seems to be impossible for thousands of our workers to observe these precautions, pneumonia's grim figures continue to head the mortality tables for the winter months.

HEREDITY.

The influence of heredity upon the mental and physical health of the individual has been deeply discussed and is a question concerning which there is much to say, both pro and con.

Almost every physician who has practiced for any length of time can cite instances of persons who, by adherence to the rules of right living and hygiene, have triumphed over serious physical handicaps due to heredity.

Where the parents have suffered from certain organic diseases or certain forms of communicable diseases, their children may be physically marred, unfortunately, beyond hope of recovery. Fortunately, laws are being enacted to prevent such marriages of defectives. Stronger than any law is the growing sentiment against these unions,—to prevent the intensifying of defects.

Too often, people believe these defects to be insurmountable. We are all familiar with the story which tells us how Demonsthenes overcame the physical handicaps which seemed to threaten his career as an orator.

For many years it was the general belief that tuberculosis was an hereditary disease. It has been demonstrated that this is the rare exception. When parents are suffering from tuberculosis there is always a chance of direct infection of the children and this fact led to the belief that the disease was inherited. It is true that the children of tuberculous parents may inherit physical conformations which reduce their resistance to the tubercle bacillus. Therefore every effort should be made to develop any weak structure which may be inherited,—as a narrow chest, for example.

Care, training and perseverance will work wonders in correcting physical or mental defects,—whether they be inherited defects or the results of individual weakness.

INJUDICIOUS INDULGENCES.

The holiday season is a busy time for the doctors. Many things contribute to make it so. The nervous strain of holiday shopping and of living in overcrowded cars and shops brings the people to a well fagged-out state, in which condition the digestive system is often loaded to the breaking point.

That is the daily program for a very large percentage of our population at this time of the year and even a layman has little difficulty in discerning that, in all probability, this program will result in a call for the doctor.

Those who can afford to do so, seem to regard the over-loading of the digestive tract as an essential part of the holiday festivities. As a matter of fact there is a great deal more enjoyment to be derived from conservative indulgence in tempting viands, than in eating to satiation. This is the case, even though the feasting results in no noticeable distress.

When excessive quantities of food are consumed the digestive organs are over-worked and certain poisons are formed which are absorbed by the blood and carried through the body. Such poisoning may even have a fatal ending.

There are numerous serious disorders which may be traced to the failure of the digestive tract to act properly, because of the over-load placed upon its organs.

The failure of these important functions of digestion speedily reacts upon the rest of the body and results in special susceptibility to colds and other infections which find fertile fields among those whose natural resistance to disease is thus lowered.

It would be well to consult a doctor before the Christmas meal instead of after it, or when the harm has already been done.

CHEAP CANDY AND CHILDREN.

A generous store of sweets goes along with Santa Claus's provisions. No matter how many dolls, drums and other toys may have been requested by the younger members of the family, it is taken for granted that there will be candy.

Much of the indigestion and distress which follows holiday feasting is due to the excessive use of candy by both young and old. Of course the principal constituent of candy is sugar. Sugar is a food and one that is necessary to human beings. It produces heat and energy but when taken in excess it undergoes fermentation in the digestive tract and gives rise to various disturbances in the stomach and intestines. More than this, it overburdens the liver, with evil results.

If the children and grownups are to have candy it should be eaten with meals or immediately after them. The usual custom is to have sweets within everybody's reach and to stuff oneself with them between meals.

To properly carry on their functions the stomach and intestines require a certain amount of rest. For this reason it is much better to eat at regular hours. When candy is eaten between meals it means that the digestive organs must be continually at work. As a result, they are overworked and it is not surprising that they rebel from exhaustion, particularly on these feast days when the consumption of food is apt to be excessive.

Pure candies are not harmful if taken in reasonable quantities. Unfortunately there is an enormous amount of cheap candy sold thoughout the country, which is grossly adulterated and perhaps colored with coal tar dyes, to make it attractive to the eye of youth.

Following holiday seasons at any time of the year, there is always a notable increase in illness which is traceable to disturbances of the digestive system. There is, likewise, a perceptible increase in the mortality from these causes. There is little doubt that overfeeding and the excessive use of sweets prevent needed rest of the digestive organs and so reduce the general resistance of the entire system.

HEALTH OF THE BUSINESS WOMAN.

There are more than eight million women wage earners in the United States. They are represented in almost every branch of commercial activity.

The question of the health of women workers is one of the utmost importance, not alone on account of the efficiency of the individual but because the future welfare of the race may be materially affected by the health of these potential mothers.

A woman's nervous organization is more sensitive than that of a man. In many trades, occupations and employments this very fact has been responsible for women's success. Good taste, tact and deftness are qualities which should be cultivated in order to enhance the value of the services of female employes.

The maximum number of hours of labor may not always bring the maximum of production. Scientific efficiency experts have proved that shorter hours and reasonable rest periods often result in increased production. Nearly all corporations and large employers of women workers have learned that by making adequate provision for the care of their employes their efficiency is increased.

The woman in business should remember that within certain limitations her well-being rests largely in her own hands.

There are four essentials to good health—

Eight hours sleep in the fresh air,

Regular exercise,

Sensible clothing,

Wholesome food.

Without these, neither men nor women can maintain their physical well-being for any period of time.

No woman should try working "on her nerves." This practice may be kept up for quite a while, when pleasure or the demands of business tempt one to rob herself of the necessary amount of rest. Invariably one foots the bills and in the end the reaction is a dangerous one.

At this season of the year thousands of women are working under a continuous strain. They should recognize this and for the time being devote themselves to getting sufficient rest outside of working hours to carry them through the stress of the holiday business conditions, even though certain pleasures have to be cut out of the daily program. Better too that a few personal preparations for Christmas be neglected than to run the risk of a breakdown after the holidays.

"I HAVEN'T TIME."

The season for good resolution is approaching. Before long thousands of men and women will have resolved to begin the new year with a definite purpose of lopping off some bad habit or of commencing some effort at self improvement.

Human happiness depends so largely upon health that many of these resolutions will center upon conditions relating to personal welfare. It is not very difficult in this age of self education to analyze our habits and discover just where our weaknesses lie. Neither is it beyond the ability of most of us to plan a sensible course which, if adhered to, will bring about inprovement. The task lies in adhering to the plans that we make.

Perhaps the most common plea made to excuse failure to carry out our good intentions is the want of time. "I haven't time" has grown to be one of the commonest of phrases. There is no question but that this is a rapid age we live in. The possibilities for accomplishment are great; what we lack is time.

The man of business knows that he needs more physical exercise and appreciates the fact that he feels better for it but denies himself because he hasn't time. We lack time to eat properly, to think properly, to rest properly. Twenty-four hours seems too short a day for many of us. What is the result?

Continually pleading the lack of time, we rush from one thing to another and in the end the aggregate of our accomplishment is nothing to boast of.

Our clock seems to be ticking at the rate of one hundred and twenty seconds to the minute but still the hour hand crawls at the same old pace. Unquestionably, most of us would be happier and healthier if we cultivated repose. Tranquility is becoming a lost art and as a result disturbing nervous complaints are far more frequent than formerly.

The cultivation of composure need not mean a reduction in our ability to achieve results. It is almost certain to insure us time for many things which will make life better worth the living.

BOTTLED WATER.

Many people who live in communities with doubtful water supplies make a practice of drinking spring water. Sometimes they take it for granted that spring water is pure water, regardless of the conditions under which it it secured, shipped and delivered. It is advisable to investigate these points if they are open to any question.

Granted however, that the company supplying the water has safeguarded its customers in every way possible and has delivered water of unquestioned purity, these precautions are of little use if care ceases then.

Great quantities of water are supplied in gallon and half gallon bottles for domestic use. These are closed with ordinary corks. In using the water from the bottles these corks are usually extracted with the fingers and held in the hand until the water is poured out and are then stuck back into the bottle. This may be done a dozen times before the contents is completely consumed. By this process the cork is often contaminated by hands which are unclean. Naturally, whatever impurities are rubbed off on the cork are in turn pressed into the neck of the bottle, to be washed out with the next glass of water poured through it and the water remaining in the bottle is inoculated with bacteria, which will multiply enormously in a few hours.

This may seem a simple matter but in reality it is not so. If people are willing to go to extra expense and trouble to insure themselves a pure supply of water, they should see to it that their efforts are not defeated by the contamination of pure water before it is consumed.

HEALTH AND TAXES.

Individual illness places a tax upon the entire community. The prolonged sickness of wage earners is apt to result in poverty for themselves and their families. Indigency and crime itself are often lurking in the trail of disease.

National efficiency must rest upon the sound foundation of health. The reduction of sickness and death from preventable diseases should be the first step in our preparation for self-defense. Lord Beaconsfield said: "The public health is the foundation on which reposes the happiness of the people and the power of a country. The care of the public health is the first duty of a statesman."

In some states in the Union there has been an increasing percentage of dependents, as the states have become more thickly populated. In addition to the enormous losses from death due to preventable diseases when health laws are not enforced, there is a tremendous annual expenditure necessitated by this growing number of those who are unable to bear their part in the world's work.

The insane, the feeble-minded, the consumptive and the pauper place a heavy burden upon the tax payer.

Provisions and expenditures which aid in the reduction of the things which sap the vitality of the Nation, will aid in preventing increased taxation for the support of the growing army of the unfit.

STUDY YOUR INDIVIDUALITIES.

Engineers will tell you that no two locomotives are ever exactly alike. They may be turned out to an exactness which defies the most modern instrument for measurement or weight to show differences. Put into service, each machine will develop individual characteristics, one engine often being superior for its purpose. This same unknown quantity is encountered in seagoing vessels. The trial trip is the only test of their efficiency.

The medical man never finds two human beings with identical dispositions, mental or physical strength; yet we are created after the same model. Owing to dissimilar nerve forces or the life of our tissues, individuals have certain definite differences and some have real idiocyncrasies.

There are broad rules of Nature governing our physical welfare which we may not transgress without evil results. Likewise there are certain things which the majority can do without putting unusual strain on the physique, but just here begins the question of the adjustment of the individual piece of machinery. We must study our physical limitations. Because one man can live on an exclusive meat diet, it by no means follows that the next fellow can. Men and women often ruin their health by trying to do things simply because others do them.

The question of age must enter into consideration. It is well to bear in mind that exertion which is harmless at one period in life may cause dangerous strain in later years.

These same principles apply in matters of diet. There are foodstuffs wholesome enough for the average individual, which seem to be damaging for the few.

We need to measure our individual characteristics and to avoid the things that do not agree with us.

These differences are the result of weaknesses or peculiarities of our vital machinery. If we would reach and maintain efficiency they must be recognized and respected.

BATHING.

When Adam first fell into the water the human race took a step forward. Civilization and bath tubs now go hand in hand.

Authorities may vary in discussing the merits of the hot bath, the tepid bath and the cold bath, but they all agree in the abstract that bathing is necessary to good health and that the bath is a prime promoter of self respect. The removal from the skin, of the accumulation of refuse matter, is the primary object of the bath.

The skin not only automatically regulates the heat of the body, permitting it to cool off when it becomes too warm and keeping in heat when it becomes too cold, but it assists the lungs and kidneys in the disposal of waste matter.

A bath should not be taken immediately before or after meal time. There is a normal attraction of the blood toward the stomach after eating; any interference with this flow or counter-attraction of the blood toward the surface of the body is apt to arrest digestion.

Warm baths have a soothing effect and are often prescribed for nervousness. The tepid bath can do no harm. Cold baths are stimulating but are apt to be injurious if the heart action is not strong enough to permit of a ready reaction. To some individuals the shock to the nervous system is so great that they are unable to accustom themselves to cold baths.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909.	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909.	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911.	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912.	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913.	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913.	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913.	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914.	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev. Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914.	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914.	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916, Fifteen Little Talks on Health and Hygiene.
85. Sept., 1916, Fifteen Little Talks on Health and Hygiene.
86. Oct., 1916, Fifteen Little Talks on Health and Hygiene.
87. Nov., 1916, Fifteen Little Talks on Health and Hygiene.
88. Dec., 1916, Fifteen Little Talks on Health and Hygiene.
89. Jan., 1917, Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 89. HARRISBURG, PA. JANUARY, 1917

LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public has been kept in mind in this presentation.

DIRTY BREAD.

Even if the process of making and baking bread be sanitary, the loaves are often far from being clean when they reach the consumer. It is frequently loaded into containers for the delivery wagon by hands that have just swept the stable or curried and harnessed the horse.

Enroute the driver may divide his time between the dexterous handling of the dirty reins or the smoking of a pipe or cigarette. The contents of his wagon is delivered from house to house and from shop to shop with hands besmeared with dirt from the stable, horse or harness and mud or dust from the road.

If he cannot take enough bread in his germ laden hands he takes a loaf under each arm. The bread that is delivered to the corner grocer may pass through two or three sets of hands before it reaches the children's mouths.

If a servant were to stick her finger in a dish that was being served at dinner you would protest vehemently but ten times that amount of carelessness in the handling of your family's bread supply is passed without thought.

If you have any doubt as to the accuracy of these observations make some of your own and realize the dangers of the transmission of disease through dirty bread.

No other food is more subject to contamination from handling than is the "staff of life."

YOUR MAIL

Do you read your morning mail at the breakfast table? Have you ever used a knife or a fork to open your letters? It is not an uncommon practice and yet an uncleanly and dangerous one.

The post-office is essentially a public utility and it is universally used by all classes of people. A common point of destination may put my lady's dainty note beside a dirty scrawl from the vilest of slums.

Millions of pieces of mail matter are handled. A certain number of these come from people who are suffering from disease, some of them loathsome and infectious.

Stamps and envelopes, contrary to hygienic rules, are frequently licked, for convenience sake. Despite quarantine precautions, mail sometimes comes from houses where there are cases of communicable disease which have not been reported.

Mail bags are not subjected to regular disinfection and are not so cleansed as to make them safe from the danger of becoming a factor in the transmission of disease.

During the recent epidemic of infantile paralysis many of those working on the disease formed the opinion that it may be carried by a third person. Is it unreasonable to presume that disease may be carried through the mail?

CIRCULATING LIBRARIES.

A word to the fond mother; upon the danger of handling in the home books from circulating libraries where those in authority do not require the volumes to be disinfected whenever they are returned from circulation.

With all the care and energy of the health authorities, thousands of homes in this State are infected with tuberculosis and it will continue to spread through circulating libraries unless the people demand the disinfection of the books, in order to destroy the germs that otherwise may be carried from home to home.

Too often we see the mother lulling to sleep the infant in her arms, while handling and reading a book from the circulating library.

Tuberculosis is only one of the several diseases that may be communicated by unclean books.

OUR UNEDUCATED GRADUATES.

A great essential has been neglected in the education of tens of thousands of young men and women who are graduating from the high schools and colleges of the country. They are presumed to be fitted to meet the responsibilities and problems of life. In the majority of instances they have had mental but not physical education.

Some few have devoted themselves, to a greater or less degree, to competive sports. This number is but a small fraction of those who pass through our schools. Our curriculums are often so planned that they make physical development difficult or impossible. To lay the foundation of health there should be proper physical training, under the supervision of specially trained medical men, beginning in the elementary school and going through the college course. A few years of training in youth, early manhood and womanhood would serve to install habits of personal hygiene which would add inestimably to future welfare of the individual and the Nation.

In every activity of life, good health is a primary essential. No mental attainment can make up for the puny, ill-nourished, ill-developed body. Lack of well developed physique almost invariably means a handicap to achievement. Our present system has failed to bring about a balanced education of mind and body. Individual efficiency and preparedness for the uncertainities of life depend upon this balance.

Today Sweden is leading the world in systematic education, with a resulting high average of citizens, individually prepared to take their part in the defense of their homes. Three thousand years ago the Greeks appreciated and practiced this happy combination in the education of their youth. It was this training that produced the scholars and heroes whose names live in the world's history.

BACK YARDS AND CHARACTER.

Bret Harte once wrote a story in which he pointed out that one must look at the back and not at the front of a man's house for an insight into the occupant's true character. If we want to estimate character accurately we must have an all-around view and not accept face values.

This brings us again to the question of back yards. Is your's as clean and well kept as you can make it or is it littered with trash, cans, kindling and other rubbish? Are the garbage and wastes properly covered and free from flies? Is the stable or out-house a fly breeding center for the neighborhood? You have work ahead of you for your health's sake and for the sake of decency if any of these conditions exist.

It is a privilege to have even a small back yard. There are thousands of dwellers in cities, where land is sold by the square foot, who yearn for a little space to call their own. Those who are so fortunate as to have back yards should care for them and make use of them.

If there be children in the family that back yard should be their playground. A doll house, a turning pole, a swing or a tent will provide unlimited entertainment and will help to keep the children out of the streets.

If there are no children in the family, a shovel, a rake, a hoe and a moderate sized back-yard-garden should afford a reasonable amount of healthful exercise combined with pleasure and profit.

DRUNKENNESS.

Man's getting drunk is to be likened unto the opening of the draft doors under the fire-box of a locomotive, generating a high steam pressure, opening the throttle and letting everything go until the machine is on a mad race through town and country, crushing whatever comes in the way,—be it man or beast. Perhaps the machine will wreck itself into a helpless mass.

If the tracks are clear the machine may run until its fire box (the stomach) burns out or a steam pipe (a blood vessel) bursts or a valve gives way and the locomotive (or the human body) becomes a useless obstruction to traffic.

In case of the locomotive the suffering is confined to the living beings it runs down. In the case of man there is not only the injury and destruction of others but the man himself suffers after he has irreparably damaged his physical body and mental powers. He may lose an arm, cripple his stomach, blood vessels or mind and become a charge on his family or the community.

When drunk, he may spend his last cent on foolish things and leave a family hungry at home. He may kill his best friend, violate a trust, throw a bomb, send a great passenger ship to the bottom of the sea, or even incite a war of Nations. A drunken man's brain may become the most devilishly inventive piece of human machinery.

A drunken man is the most demoralizing factor in civilized life. By comparison the wild beast of the forest is harmless. He sets all laws at naught. Man crazed by any kind of mental over-exertion or by drunkenness is a menace to every one with whom he comes in contact.

The wild dash of the mind and body during the stage of over-stimulation may fascinate, but when the inevitable reaction comes, death may ensue or returning consciousness may bring realization of a horrible crime committed,—never to be undone.

Under the influence of drink some temperaments become sloth-like, oblivious to the past and reckless as to the future. The harm to such persons and to others through them comes through neglected duties.

OYSTERS.

Oysters furnished food for prehistoric man, as demonstrated in the great Indian mounds of oyster shells in which are found ancient implements of war and industry. The oyster has continued to be an article of food much sought after by man and beast, but it has become so high in price that on the basis of food values it cannot be listed as of economic importance.

Through its entire geographical range, at home and abroad, this bivalve has become dangerous from the sewage polluted waters which now reach many of the oyster beds from our large municipalities. The thickly populated communities are located upon streams by reason of the fact that man has always settled near waterways and in early days the industries depended entirely upon water power. As these centers of population increased, the disposal of wastes became a great problem. The building of conduits to carry them into the pure waters given us by Nature resulted. These flowing streams carried the wastes away from the doors of one community only to poison the waters for those living down stream, simultaneously polluting our oyster and clam beds and driving valuable fish out of our streams.

Today the raw oyster is to be looked upon with suspicion. Great care should be observed in its purchase. The seller should be known to be reliable and he should know from what beds he gets his supply.

It has now become the custom to supply the culls, which a few years ago would have been thrown back into their beds as being unfit for the market. The food value of four or five of these culls is small and the taste is insipid. So they are flavored with strong condiments which destroy what little natural flavor they may have had. They are, however, quite as dangerous as the larger and better varieties and they sometimes carry the germs of typhoid fever.

Why, therefore, eat raw culls with little or no nourishment, little or no taste and yet perchance bearing the germs of disease?

Safety lies only in the thoroughly cooked oyster.

PREPAREDNESS.

Could you mobilize on short notice? Is your individual equipment always in condition to meet the demands which Nature may thrust upon it? Could you run half a mile if your life were at stake? Could you do half a day's manual labor with safety?

Of course you may say with perfect truth that there are not apt to be any such demands upon you. You earn your daily bread by mental exertion and expect to continue doing so. Well and good,—but are you sure your mental equipment is at par? The chances are that the man who permits himself to deteriorate physically cannot attain a maximum in mental efficiency.

Nature unquestionably intended that the human animal should put forth considerable physical exertion to maintain life. The complexities of modern civilization have forced many men and women into occupations where it requires effort to find time, or chance, for even a small amount of exercise. Commonly we accept such conditions with superficial expressions of regret and move along in our restricted circles of endeavor until Nature declares war.

You can make no treaties which will insure your safety under such conditions. Nothing short of a consistent policy of moderate exercise and temperate living will prepare you to meet the vital individual emergency. Your turn will surely come! Are you ready?

Personal pride should provide sufficient incentive to man or woman to keep in such condition that he or she can mount a flight of stairs without puffing or can button shoes without contortions.

The man who really wants to live should watch his waist measure and his chest expansion with the same attention which he bestows upon his bank account.

TOBACCO.

The spirit which hovered about the red man's council fires floating upward in the smoke of the peace pipe, seems to have charmed all mankind, The use of tobacco in one form or another has become world wide in three centuries and a half of time.

Despite almost universal indulgence and the praises that have been sung of the soothing effect of tobacco, science condemns it and offers an imposing array of experiments to prove the ill effects which follow its use.

Tobacco is a drug which contains powerful poisons. Its charm lies in its drug effects. If it has any beneficial qualities they are not discoverable to the scientific investigator. On the other hand there are certain decided effects tending to physical deterioration, which are readily recognizable. It is a heart depressant and experiments on animals have indicated a tendency to produce hardening of the arteries. Some of the foremost authorities have made clinical observations which suggest that the use of tobacco has similar effects on man.

As is generally the case in the use of drugs, there is a tendency to increasing indulgence. Those with experience in athletics are familiar with the fact that the use of tobacco results in interference with the breathing, by depressing the heart action. There are other affections common to smokers.

To summarize briefly, the results of all scientific investigations seem to prove conclusively that the use of tobacco is distinctly harmful to the majority of men.

GOODS ON APPROVAL.

It is the custom of many firms to send certain classes of goods to their customer's homes on approval. If they are not satisfactory, the prospective purchaserhas the privilege of exchanging them. Obviously it is impossible for the salesman to know what conditions exist in the houses where such goods go, nor who handles them or how they are tried on and examined. The possibility of thus spreading communicable disease is very real.

When new things go into a home, curiosity and interest are naturally aroused in all the members of the family. Children and adults join in the examination.

Of course, no goods are delivered on approval where there are cases of communicable disease which have been reported and quarantined, but there are often cases of disease, in the early stages, unrecognized or so mild in form as to make it seem unnecessary to call a physician. Into the homes where such cases occur merchandise is delivered without question.

Modern salesmanship is far removed from the sharp barter of earlier days and fair dealing and honest representation are recognized as necessary foundations for success.

Sending goods on approval however, is a practice that may result in serious harm to the purchaser.

LABOR.

Man was intended by the all-wise Creator to labor. His mental and physical makeup is such that occupation is essential to continued well-being.

From the hunter, the fisherman and the rude agriculturist, man has evolved a complicated civilization. Today there are thousands of occupations in place of the few primitive ones. Still, the majority of these center about the fulfilling of the primary necessities,—feeding and clothing mankind.

It has become impossible for the laborer to work under the conditions which originally existed. Besides the fields and forests we have mine, mill and mart.

Mentally, man has progressed to a remarkable degree but we cannot say as much of his physical development. His requirements are much the same as those of our remote ancestors. Sunlight, fresh air, pure water and physical exertion are absoultely essential to the maintenance of health.

If the conditions under which men and women labor do not make this possible, they are harmful to the individual and to society at large, for upon the health of it's people depends the ultimate future of any nation. No machinery can entirely replace the sinews of labor.

To be healthy and happy one must love his work.

ROBBING THE CHILDREN.

The present habit of turning night into day in our highly illuminated towns,—with all sorts of exciting entertainment,—keeps the nerves keyed up and upsets the equilibrium.

Children in particular are apt to suffer from late hours and the consequent lack of sleep. For the first two years of life, eating and sleeping are the two great essentials.

Babies should sleep from fifteen to twenty hours out of the twenty-four and older children from ten to fourteen hours. It is not an unusual thing to see babies in arms, or very young children, carried about until their parents' bed time. This is an injury to the child which cannot be made up by additional rest during the next day.

Permitting children to remain up late, is a strain on their nervous systems which may not be immediately apparent but is bound to exert a detrimental influence in the long run. Oftentimes the ill effects are perfectly apparent to the casual intelligent observer.

Irritability and any one or more of the train of evils which result from an overtaxed nervous system, may result from continually robbing the child of sleep. A regular bed time should be fixed for children,—ranging according to their age from six o'clock for babies, to eight o'clock for children of eight or nine—and this bed time should be regularly observed and adhered to. This is a matter of great importance in establishing sturdy constitutions in childhood.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916, Fifteen Little Talks on Health and Hygiene.
85. Sept., 1916, Fifteen Little Talks on Health and Hygiene.
86. Oct., 1916, Fifteen Little Talks on Health and Hygiene.
87. Nov., 1916, Fifteen Little Talks on Health and Hygiene.
88. Dec., 1916, Fifteen Little Talks on Health and Hygiene.
89. Jan., 1917, Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 90. HARRISBURG, PA. FEBRUARY, 1917

LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families anl that larger group of persons making up the public has been kept in mind in this presentation.

THE LABORATORY.

To many minds the mention of a laboratory brings some haunting suggestion of flickering furnace fires and cabalistic signs. In the first dim morning of scientific endeavor, knowledge protected itself from ignorance by a cloak of mystery. That has vanished. Science now stands beside us, ever ready to aid.

To the practicing physician the laboratory has become a necessity. There are numerous diseases which can be determined with absolute accuracy by means of laboratory tests and with less delay than is possible without this aid.

The basis of any successful treatment must be accurate diagnosis of the disease. This is why it is necessary for the physician to have recourse to the laboratory. It makes certain what would otherwise be in doubt.

With the microscope we can determine tissue changes which indicate disease and the disease producing micro-organisms themselves, while the chemist can determine the altered character of certain fluids of the body caused by diseases of the various organs.

Owing to the rapid advance in medical science, laboratory work has become a specialty in itself. It is impossible for average practitioners or even the small hospitals throughout the State, to maintain well equipped laboratories attended by competent pathologists.

In Pennsylvania, the State Department of Health maintains a free laboratory to aid the practitioners in rural districts and the Health Departments of municipalities too small to maintain their own institutions.

THE MICROSCOPE.

No single invention has made possible greater saving of human life than has the microscope.

Its origin dates back to antiquity. There is every reason to believe that the ancients had some knowledge of the use of the single lens. The compound microscope was probably invented shortly after the middle ages. The Italians and the Dutch both claim the discovery.

The ancient microscopes were very crude instruments compared with those of today. They were, however, sufficiently powerful to reveal myriads of living things in the clear atmosphere or in a clear tumbler of water but they left us to imagine a great, unseen, living world beyond the power of the new instrument—and that is even so today, in spite of our most improved microscopes.

In the hands of scientists the microscope, from time to time, has revealed a teeming life of bacteria, everywhere present. Some of these minute organisms are the friends and some the deadly foes of man. Vegetable life, and, indirectly, animal life depends upon their work.

Typhoid fever, tuberculosis, tetanus and other diseases are the result of certain of these bacteria which can only be seen by the aid of the microscope. There is evidence, but as yet no positive proof, that they are responsible for many other diseases, the aetiology of which is yet unknown.

An army of scientific workers is occupied today in the study of bacteriology in the hope of discovering organisms that produce different diseases; then to push on with the purpose of discovering that which will produce immunity or cure. This work is vital to the welfare of humanity. Indeed it is that which forms the foundation of preparedness.

There is constant warfare between certain of these little single-celled organisms and man. The bacteria have the advantage of reproducing themselves in untold numbers and of adapting themselves to different environments. When the conditions surrounding them are suitable they produce great epidemics of disease which man is unable to resist.

The fight is hopefully fascinating as man has already discovered methods to combat successfully many diseases which for centuries baffled the skill of science.

HOW TO PRESERVE HEARING.

The ear is one of the most delicate organs of the human body. It is in direct and close relation with the brain. It's three parts, external, middle and internal—are most intimately connected.

The abuse of the external ear, or that part which stands out from the head and is generally known as the ear, often does permanent harm to the unexposed parts, viz., the middle ear and internal ear.

Never permit a child's ear to be pulled or slapped as such abuse frequently causes inflammation of the middle ear and the inner ear may take on the same condition through extension.

The outstanding part of the ear is thin and unprotected by fatty tissues and when exposed to cold it becomes frost-bitten sooner than other parts of the body. It should therefore be protected from freezing.

When exposed to heavy air pressure in a tunnel or when there is heavy cannonading or blasting, the mouth should be partly open to permit equal pressure on either side of the drum membrane which is an extremely thin membraneous tissue dividing the external from the middle ear.

The healthy ear should never be cleaned beyond the surfaces that are plainly in view. The wax will naturally accumulate and work out into the external ear, where it can be removed without danger of hurting the more delicate part of the organ.

Children should be taught that it is dangerous to put things in the ears. If any little object like a bean, button or insect should get into the ear it must not be dug after. Much damage has been done by those ignorant of the formation of the ear in digging after some foreign body that has lodged well in the ear canal. If the objects cannot be lifted out a doctor should be consulted. If medical aid cannot be had, a careful syringing is the best and most innocent method of removing foreign bodies. In case animate things such as insects get into the ear, it is advisable to pour olive, cotton seed or other pure neutral oil in the auditory canal to kill and remove them. The common use of oil for ear ache is bad treatment as it is hard to remove and frequently becomes gummy or collects dirt.

The ear is often injured by snuffing fluids up the nostrils which may cause inflammation of the eustachian tube. This tube is a little duct leading from the mouth cavity to the middle ear. The ear is such a useful and delicate organ that it should receive care from a physician when trouble occurs.

LIVING ON YOUR NERVES.

Do you live on your nerves? Possibly you do and boast of it as if it were something to be proud of.

Despite ideas to the contrary, few people ever work themselves to death. It is usually the combination of business and pleasure driven at a strenuous pace which does the damage.

It is so simple to go a little further on your nerves when you know that physically you need rest and relaxation. There may be times of stress and strain when it is justifiable to exert every atom of endurance, but only under very special circumstances. To practice such exertion regularly, in order to overcrowd one's days, is certain to result disastrously.

There is much in our modern life, with its diversity of interests, which tends to excite and irritate the nervous system. We should make an effort to offset this as much as possible.

One may find pleasure and diversion without rushing madly about under high pressure.

People who live on their nerves until nervousness becomes chronic, find that it brings a train of evils, such as indigestion, worry, excitability, ill-temper and restlessness; all great handicaps to efficient work and rational pleasure.

BOASTFUL IGNORANCE.

The boastfulness of ignorance is ordinarily unworthy of comment but when it jeopardizes the health of other people it is perhaps worth while to take up the cudgels.

There is a class of individuals who ridicule all warnings regarding matters of hygiene and usually end their assertions by informing you that their grandfathers never paid any attention to "such nonsense." They usually add that they too never have done so and are alive and well to show for it.

Statistics show, however, that these people who violate the laws of Nature often meet untimely deaths. Unfortunately some people give ear to such foolish boasting and run headlong into danger.

The transmission of disease by germs is the teaching most frequently attacked by the ignorant. People who accept without comment the statement that the world revolves upon its axis as a part of the solar system, and agree to thousands of other matters, which they are incompetent to work out for themselves, will bluster about the absurdity of germs causing disease. That typhoid fever, diphtheria, tuberculosis, anthrax and pneumonia are caused by germs has been proven just as definitely as the fact that the world is round.

Fortunately exposure to disease, even of a communicable type, does not always mean that the individual so exposed, will contract it. This is the reason why the boaster

"May boast and stay
And live to boast another day."

CONTAMINATING HANDS.

Most of the milk consumed in urban communities is delivered in bottles. Many of these are of the familiar type with a flange top sealed with a paper disc. Sometime between midnight and morning, tens of thousands of these bottles are delivered upon door steps and porches.

To handle one of them with ease one naturally picks it up by the top, holding on to the flange or rim. This is the way the delivery man picks them out of the crate and the way they are put into the ice box.

When the milk is served the paper cap is lifted with the fingers or pried out with some pointed utensil and the milk poured out. If you have ever performed this operation—and most people have—you know that the milk flows over the bottle rim that has been badly exposed to the contaminating hands of the various persons who handle the bottle before it is delivered to the consumer.

This may seem a small matter but in truth no easier or more certain method of contaminating the individual milk supply could be devised.

Before the milk is poured from the bottle the bottle top should be scalded, to insure cleanlines and safety from contamination.

Owing to the fact that milk bottles are frequently used in houses of the sick as well as in those of the healthy and are not thoroughly cleansed or disinfected, they should give way in the near future to destructible bottles which can never be used the second time.

THE DANGERS OF GLUTTONY.

It is said the children of the Iroquois Indians were trained to eat frugally and were taught that overeating was far worse than undereating. They were warned that gluttons would be caught by a monster known as Sagodakwus, who would humiliate them in a most terrible manner if he found that they were gormands.

With the price of foodstuffs soaring to unheard of figures, the question of where and how to save on the food supply is an important one in thousands of households. This is particularly true of the class of individuals engaged in sedentary occupations.

Perhaps you do not feel that you come under this head, but suppose you try a few experiments. Make some slight investigation of the nutritive values of the different foods, cut your excessive allowances and eat slowly. Drink plenty of water between meal times.

It is said that the Indians had but two regular meals a day. The Iroquois had but one. Certain it is that an increasing percentage of our population succumbs to degenerative diseases and it is the concensus of medical opinion that overeating is an important causative factor.

A word as to the possibility of eating too much and yet starving to death will follow.

ARE YOU STARVING YOURSELF?

I want to impress upon you that notwithstanding the fact that our markets are full, and that the wheels of industry are moving with unprecedented steadiness, keeping the dinner pail of every able-bodied person full of eatables, we have among us those who believe themselves intelligent and yet are starving to death.

The human body is the most complicated piece of machinery known to man. To maintain it we must supply it with albumin found in meats, beans and some of the other vegetables. It must have starch or sugar found in bread, potatoes and sweets. We must have fats also, found in meats, nuts, and of course, pre-eminently in butter and good milk.

The body also demands certain salts, such as are found in many of the vegetables if they are not deprived of them by being soaked in water before or during the process of cooking.

These constituent parts of the diet must be intelligently proportioned.

The lower animals know, in some manner, just what foods Nature demands to keep bodies healthy and insure a strong physical development. Man's artificial life has extinguished that intuition which may have existed during his primitive existence.

Today we must urge our educators to teach children of understandable age the necessity of selecting a rational combination of foodstuffs.

At present we want real, all-round, family physicians whom mothers can consult as to how to feed their little flocks, including the grown-ups of the household as well as the small children.

Proper feeding is one of the necessary factors in the development of the human body and in preserving a natural resistence to disease

BLUE MONDAY.

Is it your habit to get out of bed on the wrong foot on Monday morning? Do you start for the office with a frown on your face and a look in your eye that sets the office boy hunting for an errand outside or imparts to the whole force a grouch that lasts for the better part of the day?

Salesmen who make use of psychology in their business are very apt to postpone their Monday calls until after lunch. By that time the atmosphere has cleared a little.

When you come to think of it, the new week's work too often slips off the ways with considerable friction. In office, school and household, if it is not the rule it is at least of sufficiently frequent occurrence to make the picture familiar to all.

With many people this is not because their daily tasks are distasteful or because their real attitude toward their associates is aggressive; it is more a matter of rather ill conceived ideas of what constitutes rest or diversion.

While it is not possible to describe the week end habits of the people at large, the majority of people are very apt to fall into general divisions. One class tries to crowd too much into the time between one week's end and the beginning of the next week's labor. They take up their business on Monday morning exhausted and overtired instead of refreshed by the "day of rest." Another class goes to extremes by overeating and under-exercising with results equally unhappy.

Try to strike a happy medium. Remember that the cheerfulness which almost invariably begets its like is well nigh impossible to one who is fagged out or dulled by over-eating.

THE SERIOUSNESS OF SNEEZING.

Let the innocent bystander beware of the careless or ignorant individual who takes no precaution to cover the nose and mouth when sneezing. Such carelessness should be resented as you would resent the dangerous habit of spitting.

When you sneeze, a spray of the secretions from the mucous membrane of the respiratory tract and the throat is thrown into the air for quite a distance about you. This spray often carries the germs of disease. From certain forms of leprosy and tuberculosis, thousands of germs capable of producing these diseases, are breathed in by those who are standing within the zone of the spray.

Many of the influenzas or so-called colds are communicated from one person to another in the same way. Some apparently healthy people have disease producing organisms that are sneezed out. If taken into the respiratory tract of others who have less resistance, they will cause whatever special disease the particular inspired germ produces.

HEALTH AND BIG BUSINESS.

Efficiency is generally considered the God of Big Business. Certain it is that great corporations have carried organization to the point of materially increased effectiveness of their employes. Therefore it is not surprising to find that in all great commercial and industrial plants there are well organized medical departments.

Employers who have upon their rolls the names of tens of thousands of men and women find that it pays them to provide for the adequate medical care of their working men and women. This provision has been carried out to a degree which would have been astounding a generation ago. Practically every department store has its medical and nursing staff. Some even have dentists and chiropodists whose services are at the disposal of their employes.

Instead of considering applicants for employment without regard to their physical condition, examinations are now required in order that sufferers from tuberculosis and other communicable diseases be not added to the force of employes and thus menace healthy workers and the establishment's customers.

Great industrial plants not only offer medical and surgical treatment to their employes, but the majority of them conduct welfare work, carrying modern medical and sanitary practice into the homes of their employes, to the great benefit and protection of both workers and their families.

It has been demonstrated beyond the question of a doubt that this is an excellent investment from the employers' standpoint. No man who is physically unfit can render the maximum of service. Big business has proved that health is a primary necessity in industry and it is willing to pay for it.

Employes have never been taken better care of than at the present time. This has come about in large part through the educational work of health authorities, with the assistance of the public press.

FAT AND FORTY.

Forty is an unlucky number for men five feet eight or under,—if it is the waist measure. Any number above that is equally to be avoided. Over-weight is dangerous and is indicative of several things. Either the appetite is not controlled, insufficient exercise is taken, or the diet is made up of improperly selected food stuffs.

If any or all of these things are to blame it is the part of wisdom to seek expert advice and to begin to apply the remedy forthwith To sink into the placid indifference of the "fat and forty" stage is a crime against your health. It means, in all probability, that the liver and kidneys are over-worked and the result of such strain, if prolonged, is fatal at times.

There is another reason which is worthy of equal consideration. Physical fitness has a distinct bearing on a man's mental attitude and so has unfitness. The man who, through neglect and lack of control over his appetite, begins to eat himself into an early grave, loses his crispness of thought. There is lacking self respect which every man who achieves things should have for himself as a clean, well groomed animal.

Don't weakly excuse yourself if you have unconsciously slipped into this class. Get busy and work yourself out of it before it is too late.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909.	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910.	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469.000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77.	Jan.,	1916,	The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78.	Feb.,	1916.	The Sanitary Index. A Method of Measuring Public Health Work.
79.	March,	1916,	Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80.	April,	1916,	Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81.	May,	1916,	The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82.	June,	1916,	Fifteen Little Talks on Health and Hygiene.
83.	July,	1916,	Fifteen Little Talks on Health and Hygiene.
84.	Aug.,	1916,	Fifteen Little Talks on Health and Hygiene.
85.	Sept.,	1916,	Fifteen Little Talks on Health and Hygiene.
86.	Oct.,	1916,	Fifteen Little Talks on Health and Hygiene.
87.	Nov.,	1916,	Fifteen Little Talks on Health and Hygiene.
88.	Dec.,	1916,	Fifteen Little Talks on Health and Hygiene.
89.	Jan.,	1917,	Little Talks on Health and Hygiene.
90.	Feb.,	1917,	Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers: 7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 91. HARRISBURG, PA. MARCH, 1917

LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public has been kept in mind in this presentation.

SANITATION PUT TO A TEST.

Typhus fever exists today in Mexico, and thousands of Mexicans are traveling across the boundary lines into the United States in search of work and the good pay it brings. The boundary line formed by the Rio Grande is so long and tortuous that our little army of sanitarians is not able to prevent many of the Mexicans from coming into our midst without any sanitary treatment. The danger is obvious.

There is, at present, scientific evidence that the causal agent of typhus fever is found in the bodies of lice feeding on the blood of typhus fever patients. While the scientific workers continue their study of the matter we are fortunate in knowing that the microorganism is carried in the body louse and transmitted by its bite. There is a fair degree of suspicion that the head louse may also carry and transmit the typhus organism.

The body louse delights in woolen clothing, laying its eggs upon its fibers, but it can make itself very much at home in cotton spun material.

To prevent the introduction of typhus fever from Mexico into the States, no Mexican should be permitted to cross the boundary line without a permit given by the United States Public Health Service. All health officers should be on the lookout for the newly-arrived Mexicans who are settling in construction camps and about the centers of great industries and when these foreigners are found and fail to show a clean bill of health, they should be examined for lice. If lice are found, the clothes of the patient should be steamed or burned, the hair should be clipped and the body washed and wrapped in a sheet soaked with a mixture of one-half kerosene and one-half vinegar. The hair of the head should be wrapped in cheesecloth which has been soaked in this same mixture.

In looking for the lice, it is well to remember that when you begin to strip the body they immediately make their retreat into the clothing. This makes it necessary to examine the clothing and if lice are found it is certain that they have been on the body. Therefore the process of disinfecting or delousing is imperative.

If conditions will not permit of the destruction of the clothing, it should be steamed or baked until all signs of lice have been destroyed. The eggs must also be destroyed and this requires a penetrating and prolonged steaming or heating.

If infected lice are carried across the border into our midst, typhus fever may become prevalent in many places, as shown by California's experience. Those carrying lice are very apt to get into crowded housing conditions, where the lice have every opportunity of infecting a large number of people.

When health officers have proof that foreigners have come from infected districts, they should be held in quarantine for about twelve days after being cleansed, to cover the incubation stage of typhus fever.

Epidemic typhus fever is a very fatal disease, yet the death rate can be greatly reduced by intelligent medical aid. There has been a shortage of such medical aid in Pennsylvania for several years, ante-dating the outbreak of the present war and hereafter this shortage will inevitably be greater.

It is quite possible for the medical men and the Federal government to mis-calculate the necessities of our home people. Thousands of our best physicians and even teachers of medicine are leaving our shores for foreign countries. This condition of things makes it important,—if we intend to keep up the basic supply of food, ammunition and warriors,—for our people at home to listen to those who are versed in preventive medicine and to heed their advice. All should be awake to the necessity of carrying out sanitary laws, as well for individual selfish gain, as from recognition of the moral duty we owe our country in this time of war.

Individual cleanliness and a clean environment are essentials in excluding typhus fever. Transportation companies should demand health certificates before transporting immigrants coming from Mexico, and our great industries should do everything possible to provide proper housing for their employees, not only to prevent possible epidemics of typhus fever to avoid other communicable diseases.

COMFORT HOUSES.

Comfort houses in cities and towns are essential to both health and comfort of our people, yet in Pennsylvania the traveling public, visiting a town for a day or two for sightseeing purposes, is unable to find comfort houses or lavatories.

These good people, often strangers, are driven into saloons in search of lavatories. The men often buy drinks because they feel indebted to the innkeeper. It may even be that this drink may be taken for the first time by one of weak character or with insufficient force of mind to deny himself another. This his visit may lead indirectly to a sad ending.

On Sundays and holidays, when the stores and taverns are closed, our visitors are hard pressed to find places of rest and comfort. Comfort houses maintained in sanitary condition are not entirely without a money cost, but they are really essential. Their absence not only causes discomfort but ill health.

When Governor Tener placed the Health Department in charge of Gettysburg to prepare it for the great meeting of the Blues and Grays at the Fiftieth Anniversary of the Battle of Gettysburg, we reviewed the necessary things to be done, such as providing an ample water supply, hospitals, dispensaries, sewage disposal, etc., and we conceived the idea of having a generous number of comfort stations, well placed throughout the town of Gettysburg and along the roads leading to and from the old battlefield.

These houses had male and female attendants;—thousands upon thousands of people made use of them and as places of rest and comfort they represented a large factor in making our phenomenal health record at this memorable occasion.

During the gathering of the Blue and the Gray at and around little Gettysburg, with its normal population of about eight thousand people expanded by one hundred thousand visitors, there were only nine deaths during the seven days, notwithstanding the old age of the veterans and their families.

If our health boards and councils will awake to the necessity for comfort houses, designed and maintained to keep up sanitary conditions, they will help to advance not only the health, but the morals of our people.

WATER.

"Water!—of Heaven, first born, ever in all ages a sacred emblem from that remote period when the earth was without form and void and darkness was upon the face of the deep and the Spirit of God moved upon the face of the waters. Alas! in these latter days, more abused than is any other element."

From the settlement of America by the Spanish, our water ways, from babbling brooks leading to and including the broad water highways of nations, have been used for the disposal of sewage and this without restraint until a few years ago. Since then the effort to change this condition, begun under the law of 1905, has resulted in reducing typhoid fever 74 per cent. as well as lessening the suffering and sorrow of thousands of human beings.

The time consumed in bringing about the cleansing of streams is not for the want o fsufficient legislation; that is ample. The progress has been impeded by the fact that homes and industries since our earliest civilization have grown very much as "Topsy" did, without any thought of the morrow. With the enormity of the insanitary conditions to be met, with so many lives depending upon the products of the offending producers, much care, financing and time must be used to eliminate the death dealing condition.

The sewage from individual sources has largely been removed from our streams and our industries have removed their wastes gradually and continually. This however, has been a work that of necessity moves slowly, for upon the great industrial plants our people depend for many of the necessities of living and hundreds of thousands of them earn the bread and butter for their families by working in the great manufacturing plants of the Commonwealth.

During the last decade our people have been educated to the understanding that pure water is as essential for good health as proper food. This was recognized however, in the time of Nero; that great and arbitrary Emperor was fined for polluting the Nile.

As the best results in civilization are obtained by cooperation and not by the harsh enforcement of police laws, appeal is made by the Department of Health to every citizen of Pennsylvania to guard from pollution the waters which we must use for domestic purposes. To restore our streams to their virgin conditions will of course be somewhat expensive, yet money cannot be better spent, as the public health depends upon improving our domestic water supplies—in truth it is a great factor in increasing the power of our Nation, which depends upon the health of its people.

THE OUTLOOK FOR INFANTILE PARALYSIS.

We are fast approaching the warm months of the year that favor infantile paralysis.

Last year the public lost its nerve. This season it is hoped that the epidemic will not reappear.

From the history of the disease it would not be surprising if we had comparatively little this year,—yet no man can predict what Nature may do.

The health authorities are alert and busy, doing all the things which they believe may in any way lessen the chances of another epidemic.

On account of our want of exact knowledge as to the origin of the disease and the part taken by Nature in transmitting it from one to another, we must avoid all places in which infantile paralysis manifests itself. We can also be careful to avoid exposing our children to persons, furniture and clothing coming from infected houses or districts.

It may perhaps require direct contact with the sick to contract the disease. This, however, is far from being a settled question; it is quite possible that there is a carrier;—for instance, there was some evidence brought forward to demonstrate its conveyance by a stable fly; this has not been proven, but there may be some other insect that does carry it.

The State Department of Health has placed sick monkeys with well ones without causing the latter to contract the disease, so far as we could determine. It is claimed, however, by some of our best investigators that the disease is transmitted by means of insects. Another possible explanation would lie in the contention of certain medical men that many children have the disease so lightly that it is never discovered.

The well must be kept from the sick, however, in human life. While the disease is lurking about, no healthy child should be exposed to one showing the least illness.

The health authorities are not contemplating any general quarantine. It is too soon as yet to decide about that.

The State Health Department has always held that the sick child should be quarantined for two weeks.

The discharges from the bowels, throat or nose should be disinfected. The nurse or the one in charge of the sick child should wear a gown and the face and hands should be washed or disinfected before the nurse mingles with those outside of the sick room.

If the conditions of a home are bad and if the child cannot be isolated or kept alone, the hospital is the place for it. This transfer should be made very early in the sickness as quiet and rest are essential to recovery. A doctor experienced in treating the disease and a nurse with like experience add much to the chances of recovery.

Traveling with children and allowing them to congregate in groups should be discouraged. In fact, during an epidemic it should be forbidden under police regulation. Cleanliness of the home and person are essential. All animal and insect life should be kept out of the house. Screening of all windows and doorways is imperative. No food should be eaten raw.

YOUR HEALTH AND THE WAR.

Since we have gone to war let us have in mind the lesson of the tremendous bearing of health problems on the welfare of our armies in camp and our citizens at home, so that we may not have to relearn it by bitter and calamitous experience. It would seem to be a late date to have to point out the almost self-evident fact that sickness will decrease the national efficiency by just so much, whether it be among soldiers or non-combatants, but the general public does not give enough attention to this aspect of war's demands, the accent being placed on more spectacular elements of preparedness.

One of the first factors in the health of a nation at war—or at peace, for that matter—is its food. It cannot be healthy and strong without good food and plenty of it. Therefore agriculture and gardening must be intelligently and intensively stimulated, so that larger crops shall be brought forth.

The housewife's task will be to economize the food supply and cook it with such skill as to make the meals tasty and digestible.

The streams from which come our domestic water supply should be carefully guarded against pollutions, so that communities shall not run the risk of being infected with deadly diseases.

Vaccination against typhoid is a valuable step in preparedness under conditions as they are at present, and the Commonwealth of Pennsylvania, through the agents of the Department of Health, is prepared to give typhoid vaccine to those who cannot afford to purchase it.

While our water supplies have been so improved in the Commonwealth that typhoid fever had been cut down 75%, vaccination against the disease during this emergency should bridge us over a period in which we must attain the highest efficiency of health and should give the Health Departments throughout the Commonwealth time to continue their work of reducing the pollutions of our streams and enable our people to go on with their daily labors, producing food and all other things necessary for our strength during war.

Smallpox is a loathsome disease and often a fatal one and under the best of circumstances it creates a long period of incapacity for work, and demands the strictest kind of quarantining of those who may occupy the same house. The disease can be absolutely prevented by vaccination. The presence of smallpox would greatly handicap the efficiency of our great Commonwealth of Pennsylvania in serving the nation in time of war.

The Life Extension Institute, with which we are cooperating, has estimated that nearly half the body-building food and 70 per cent. of the sustaining food on American tables is derived from such grains as wheat, oats, corn, rye, barley, rice and buckwheat, and that these grains are to the human machinery what coal is to the manufacturing industries, viz.: the greatest source of heat and power.

The time has come to consider these matters in a spirit of patriotism. It is the duty of every citizen to attain physical fitness, and of the people as a whole, to take measures for the increased production of food materials.

Wanton destruction of food is as real an injury to our country as destruction of munitions or arms, for in the last analysis the nation that is well fed is the nation that will prevail. These matters are already claiming the attention of the Federal Government.

Hand to hand with the mobilization of factories and munitions must go the mobilization of agricultural products, the planting with grain and vegetables of as many acres of land as possible and the distribution of the crops in the most economical way.

ARMY BLANKETS.

United States army blankets are not economical for private or permanent hospital use. For the reader to fully appreciate this criticism he must disabuse his mind of a common fallacy, viz.: that the purpose of blankets and clothing is to give heat to the body. Blankets and clothing only retain the heat of the body by preventing it from being taken off by the general atmosphere. Therefore, blankets should be soft and pliable so that they will fall of their own weight and fit snugly to the form, thus preventing the air from circulating freely between the blankets and the body.

The army blanket is woven so closely and becomes so rigid when thrown over the body that it fails to conform closely, but stands out and permits an air space between itself and the body. This interferes with its heat-retaining qualities to a marked extent. After the test of practical application in our large hospitals in the Commonwealth of Pennsylvania we find in the cold high mountain regions that we can get along with three softer woven blankets better than with five army blankets.

From this discovery and its practical application we not only save much money in maintaining our hospitals but we give our patients more comfort. The blankets are warmer and at the same time are lighter in weight.

The army blanket was originally so made that it would be strong and durable in active campaigns, where it had to be carried on the soldiers' backs, on saddles of horses, or in the supply wagon. Owing to the fact that they were made of all wool, had long lives, and were made in a substantial way, they soon came into general use, particularly into hospital use and more especially into hospitals where the open air treatment was necessary.

The State Department of Health of Pennsylvania has its blankets made according to the following specifications:

"Double blankets to be not less than 80″ long by not less than 60″ wide when finished. Weight to be 4½ lbs. per pair when finished.

"Warp:—To be of cotton, long staple. To be well carded and evenly spun, of No. 14 yarn, 43 threads to the inch.

"Filling:—To be blend or mixture of not over 20% cotton. Balance to be pure wool, staple good and true, 32 picks to the inch in finished product. Color to be medium gray.

"Border:—No border.

"Binding:—Each pair of blankets to be bound on the ends with a two inch gray mohair binding. To have two rows of stitching ¼″ apart and to count about six stitches per inch.

"Embroidering:—Each pair of blankets to be embroidered with the letters P. S. C. S. 4½″ high. To be in center of blanket.

"Note—A blanket showing the general design and construction is on file in the Philadelphia office."

SOME EVERYDAY CAUSES OF INDIGESTION.

The teeth are the first instruments employed in the process of digestion. They represent the millstones that cut and grind the food. As they do so, alkaline secretions are given out by glands in the mouth and mix with the food to cause the first change it undergoes in the process of being absorbed by the system.

Good teeth are essential to normal digestion. Teeth which are diseased, or artificial teeth held in place by settings which retain food, are injurious to health because they provide places in which disease producing germs grow and multiply.

If you have decayed teeth or false teeth difficult to keep clean, have them attended to. The germs they foster produce poisonous substances which interfere with the normal functions of such vital organs as the heart and kidneys.

If you put your teeth in order, provided the organs have not become chronically affected by long subjection to improper conditions in the mouth, the discontinuance of these poisons will permit Nature to reassert herself and the organs whose functions have been affected will resume their normal course in sustaining the scheme of life.

Care of the teeth should begin with childhood and they should be kept cleansed by means which do not wound the gums. They are usually destroyed by acids, therefore no mouth washes containing acids should be used. Consult your dentist before using mouth washes or cleansing preparations in the form of powders, creams, etc.

If you are interested in your digestion, you will avoid incongruous mixtures of foodstuffs made up solely to tickle the taste. Potato salad made in the American style is a good example. The potato is composed chiefly of starch. That is digested in the "second stomach" where the secretions are alkaline. If you soak the potato in vinegar you provide an antagonist to this alkaline secretion. Therefore, you are materially delaying the digestive process.

Poor cooking often makes proper food either difficult or impossible to digest. The hard-earned money of the household goes to the purchase of good food which is often ruined by the housewife ignorant in the art of cooking. Good cooking is not a matter of whim or of flattering the palate. It is an absolute requisite to health. Therefore the art should be taught in our public and parochial schools.

If you eat too fast when overtired, heated or chilled, you will often suffer distressing indigestion. Eating in stale or impure atmosphere interferes with digestion. If you are compelled to take a meal under such circumstances, the quantity of the food should be reduced to the minimum.

Beyond the things which have been mentioned,—(all of which can be controlled to a greater or less extent)—it will be found that certain foods in themselves do not agree with certain persons. If you are eating sensible food in a sensible manner and find that some particular thing disagrees with you, the only rational thing to do is to cut it off your list.

NEGLECT FOR BABIES; CARE FOR CALVES.

The average calf or colt receives more intelligent care than does the baby of our own flesh and blood.

Why should this be so in this highly civilized country of ours, where people are naturally affectionate and kind? In the first place, it is due to the psychologic attitude of many parents. They seem to take it for granted that anything called by the name of "food" will sustain the lives of children satisfactorily, if administered in regular three-times-a-day portions.

They don't stop to think that something besides a name is needful to make real food. The result is that every day, we see many children little in stature, and with soft, weak muscles, stunted from want of a well-balanced diet. For instance, many of these little ones have been fed regularly on bread and molasses, and have thus entirely missed fat and albumin. Such children have little or no resistance to disease and often fall victims to tuberculosis because their parents did not know that a mixed diet is necessary to nourish the different parts of the anatomy and to supply the heat and other force needed to carry on the work of the body properly. But those same people know what their domestic animals need to eat and see that they get it.

Some parents go further and permit their children to select their own food. There was a time, in the remote age of the ancestors of man, when this might have been safe. In those days humans participated to a degree in the animal instinct to avoid harmful food. We have completely lost it nowadays, and if we permit our children to select their own food, we place them at a distinct disadvantage when compared with the colt or calf already mentioned, for the youngest animal shares its elders' instinct to differentiate between poisonous and non-poisonous products of nature.

What is to be done for these babies? We have decided that the colt and the calf do not need any help, but who will teach the parents even a few of the things they should know about their children?

There is somebody to teach these parents about their colts and calves and even the little pigs, if they don't happen to know already. Our national government has undertaken the task and its Department of Agriculture has a man at its head who sits in the President's Cabinet. He has Congress appropriate large sums of money to teach farmers how to feed and care for new born colts, cows, pigs, sheep, chickens, and all the other stock.

But our National Government does not seem to have thought about babies. There is no Department of Health at Washington, and at Cabinet meetings the babies have no representative, though the pigs and calves have.

The composition and values of foodstuffs for human beings should be taught in our schools and a Federal Department of Health should be established which will look after human-kind at least as well as the animals are looked after.

Then we would cease to see on our farms puny, half-starved children and beautifully developed Jersey, Guernsey and Swiss cows, and Percheron, Clydesdale and Hackney horses in the pink of condition;—a condition obtained by following instructions given by the Department of Agriculture of the United States Government.

DOCTOR AND PATIENT.

Do you know how to use a doctor? When you are ill you send for him, of course. He has an automobile in which to visit people who wait so long before seeking his advice that they cannot visit him. He begins by asking all sorts of questions which may seem to have little to do with the matter in hand.

Suppose you did go to a banquet and eat and perhaps drink a little more than usual. Perhaps you have been working extra long hours at the office and naturally haven't had time to take exercise. Maybe you have neglected yourself a trifle. The important thing is that you are sick and it is the doctor's business to give you medicine that will right all this promptly. You haven't time to stay in bed and he knows it. Therefore, the thing for him to do is to give you a teaspoonful of something, three times a day before meals, that will set everything straight forthwith. This is the ordinary conception of a doctor's duty to his patient.

Now as to the doctor's side of it:—When he visits a patient he probably thinks,—after asking questions;—"Here is a man who works hard, eats too fast and too much, fails to exercise and when fatigued resorts to a "nip," two or three times a day, to "buck himself up." His digestive organs are overworked and what he needs is a change of habits and a modification of his method of living. A little rest, if I insist upon it, a tonic and some restrictions of diet for a few days will pull him through this spell. He will probably take the medicine I have prescribed but will forget the advice in a week." That's the doctor's side of the case.

Then again there is the man or woman who is almost certain that something is wrong with him physically. Some of the bodily functions are not right and he knows it but keeps on because he "hasn't time to be sick." Finally he is forced to seek advice and then the doctor discovers that there is some profound organic disease which perhaps has progressed so far that he is helpless to give aid.

When about to build a house you call in an architect who acts as your adviser, makes your plans and sees that they are carried out. If you are going into a business deal your lawyer draws up the contract, sees that your interests are protected and advises you how to proceed. But in the case of the *doctor,* you call him in when the damage is done and you expect him to give you something in a bottle that will undo the results of weeks, months or years of indiscretion and neglect.

DANGERS OF SPRING.

When Nature, awakes from her winter lethargy and when the first faint promises of Spring soften the winds, man harkens to the foretokening in common with all animal life.

The desire for change and relief from the winter routine is strong in all of us and this is the time when caution should be exercised while our impulses seem to lead us to cast it aside. The high death rate from pneumonia and tuberculosis. which inevitably accompanies the early Spring months, is evidence that this change from winter habits demands the exercise of caution, if evil results are to be prevented.

The city dweller, in particular, is apt to over-eat and under-exercise during the winter season. As a result, when Spring approaches, his physical strength is below par;—he becomes easily fatigued and therefore susceptible to the attacks of disease germs.

Old people who suffer from the cold during the winter do not appreciate that ventilation does not mean exposure and they are apt to suffer from the sudden changes of temperature in the Spring. It is because of these winter habits of poor ventilation and insufficient exercise that we feel debilitated when Spring arrives.

The sensible citizen, who sleeps the year round in the fresh air, eats in moderation and exercises rationally, is far less subject to Spring fever and Spring ailments than is the more self-indulgent individual.

During months when fluctuations of temperature are frequent, care should be taken to maintain an even bodily temperature by proper protection in the way of clothing. Better some slight discomfort at noon than a chilling on the way home from work at night. Moderation in diet is also advisable. This, with a reasonable amount of exercise and well ventilated sleeping rooms, will aid all in resisting the dangers accompanying Spring's approach.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909.	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909.	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909.	The Family Physician.
4.	Oct.,	1909.	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909.	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909.	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910.	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910.	The Object to be Attained by the Medical Inspection of School Children.
9.	March.	1910.	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910.	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910.	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910.	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910.	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910.	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910.	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910.	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910.	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910.	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911.	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911.	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911.	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911.	Health.
23.	May,	1911.	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911.	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911.	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911.	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911.	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911.	The Foundations of State Medicine.
30.	Dec.,	1911.	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912.	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912.	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912.	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912.	How to Organize a Baby-Saving Show.
35.	May,	1912.	Drowning.
36.	June,	1912.	The Health of Suburban Residences.
36½.	July,	1912.	Report of the Austin Disaster.
37.	Aug.,	1912.	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912.	Modern Medicine and the Physician.
39.	Oct.,	1912.	Battling for Health at Mont Alto.
40.	Nov.,	1912.	Tuberculin.
41.	Dec.,	1912.	Conservation of Health. An Address.
42.	Jan.,	1913.	Municipal Sanitation.
43.	Feb.,	1913.	Tuberculosis and our Schools.
44.	March.	1913.	The Relation of the Undertaker to the Public Health.
45.	April,	1913.	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913.	Troy Typhoid Fever Epidemic.
47.	June,	1913.	The Registration of Vital Statistics a Social Service.
48.	July,	1913.	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913.	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913.	Health and Education. An Address.
51.	Oct.,	1913.	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913.	Bathing.
53.	Dec.,	1913.	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914.	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914.	Reproduction and Race Betterment.
56.	March.	1914.	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914.	Insanitary Bath Tubs and Lavatories.
58.	June,	1914.	On Housing.
59.	July,	1914.	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914.	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914.	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914.	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914.	Effective Rural Sanitation. End Results.
64.	Dec.,	1914.	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915.	Present Organization of the State Department of Health.
66.	Feb.,	1915.	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March.	1915.	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915.	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915.	Flies as a Factor in Infant Mortality.
70.	June,	1915.	Pennsylvania Health Legislation of 1915.
71.	July,	1915.	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915.	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915.	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915.	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915.	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915.	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77.	Jan.,	1916,	The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78.	Feb.,	1916.	The Sanitary Index. A Method of Measuring Public Health Work.
79.	March,	1916,	Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80.	April,	1916,	Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81.	May,	1916,	The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82.	June,	1916,	Fifteen Little Talks on Health and Hygiene.
83.	July,	1916,	Fifteen Little Talks on Health and Hygiene.
84.	Aug.,	1916,	Fifteen Little Talks on Health and Hygiene.
85.	Sept.,	1916,	Fifteen Little Talks on Health and Hygiene.
86.	Oct.,	1916,	Fifteen Little Talks on Health and Hygiene.
87.	Nov.,	1916,	Fifteen Little Talks on Health and Hygiene.
88.	Dec.,	1916,	Fifteen Little Talks on Health and Hygiene.
89.	Jan.,	1917,	Little Talks on Health and Hygiene.
90.	Feb.,	1917,	Little Talks on Health and Hygiene.
91.	March,	1917,	Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 92. HARRISBURG, PA. APRIL, 1917

LITTLE TALKS ON HEALTH AND HYGIENE BY THE COMMISSIONER.

These little chats are designed to convey to the people of Pennsylvania homely facts which may assist in the promotion of the public health. The statement of simple truths which all may understand and simple rules of conduct for individuals, families and that larger group of persons making up the public has been kept in mind in this presentation.

SPRING TONICS.

With the honk of the wild geese, flying northward, the patent medicine and home remedy manufacturers seem to be inspired anew and there follows a wave of Spring Tonic advertisements.

The tonics which the vast majority of individuals need at this period of the year are fresh air, exercise and a simpler diet. Owing to weather conditions many of our activities are restricted in the winter time. There is also a tendency to eat excessively of meat and fatty foods. As a result, when Spring arrives with its warm days many of us are like furnaces so choked with fuel that they don't draw well.

You cannot buy relief from these conditions at a dollar a bottle. Medicine will not compensate for over-eating and under-exercise. The high death rate which invariably prevails at this season of the year from pneumonia, tuberculosis and other respiratory diseases, is largely due to the reduced physical resistance of individuals which makes them particularly sensitive when the sudden changes of temperature occur incident to the season. Old people are particularly susceptible as they are housed more closely during the winter time than young folks.

Let your Spring Tonic prescription read something as follows:—

1. Eat meat but once a day and sparingly.
2. Those not under the doctor's care should drink a glass of water before retiring for the night and another an hour before breakfast.
3. Get all the fresh air possible.
4. Sleep with your windows open.
5. See that your clothing is suitable and heavy enough to protect you against sudden changes of the weather.
6. Walk five or six miles a day in the open air.

CONSOLIDATED PUBLIC SCHOOLS.

As we stand on the threshold of the world's war we must not forget that our children, who are soon to take our places and assume our responsibilities, are still to be cared for as before.

One of the principal problems concerning the health of children is brought up by their association in school life. During vacation time, children do not congregate indoors as they do when the school term is on and it is in the vacation season that we have the lowest death rate from communicable diseases. The death rate is a different story and a sad one during the school months.

The State Department of Health has a chart which shows the relative number of deaths of Pennsylvania children from communicable diseases during the various months. It is made up of columns and the height of each column tells the story for its particular month.

During the summer,—the vacation period,—the chart shows only little stumps of columns. Just as soon as the schools begin and children are forced to sit together in rooms, oftentimes with closed windows, these little stumps begin to grow. The sight of these higher columns is a sad one to the health officer who feels his responsibilities keenly.

The broad question of the advantages and disadvantages of "consolidated schools" is not to be considered in this little chat but certain of their aspects, as they affect health, are worth looking into.

These larger school houses, of course, draw pupils from over a much greater area than did the little red school house of the past. The longer distance of travel takes more time and for this reason, perhaps more than any other, conveyances are provided to transport some of the children.

Any old trap seems acceptable and its carrying capacity is elastic, so the children, boys and girls, are simply piled in. No caretakers are in charge and there results a jam of the strong and weak, the sick and well, the vulgar and gentle of both sexes; and they are packed in as sardines are packed in boxes.

The air in many of the closed vehicles soon becomes foul. If one child happens to be in the initial stage of measles, every child in the conveyance who has not had the disease is likely to go down with it. While, unfortunately, it is not generally considered by the public as one of the serious diseases, it often leaves the patient in a very susceptible condition to tuberculosis or other serious affections.

The present system of carrying children to and from the larger centers of education is hard on health, morals and life.

If a thing is worth doing, it is worth doing right. It is suggested that we stop organizing any more consolidated school centers until we organize proper ways and means of transportation, means which will have direct care for morals and health.

WASHING DISHES.

Common tasks are important because they are common:—for example, washing dishes. Everybody may not wash dishes but all must eat from dishes that somebody has washed.

To properly cleanse dishes and eating utensils, they should be washed and rinsed in boiling water. Washing in lukewarm water, even with soap, is not sufficient.

There are numerous communicable diseases caused by germs which are present in the mouths of those who are afflicted. People in the various stages of tuberculosis, diphtheria, syphilis, etc., may transfer disease germs from their mouths to eating utensils. Unless they are sterilized by boiling water, they are sources of danger to whoever may use them subsequently.

Forks in particular, because of their construction, are difficult to clean thoroughly and they should be washed with care.

In public eating houses exceptional attention should be given to the sterilization of eating utensils and drinking glasses. Care in the choice and preparation of food is easily offset by careless service.

THE FLY AND THE EPIDEMICS.

Reams have been printed about danger from the house fly. Despite all that has been said, it is a self-evident fact that people do not understand how real and how great is the danger from these pests; otherwise a single season would be sufficient to wipe out the dangerous nuisances. When people once understand the part that the fly plays in the transmission of disease they will look upon anyone who maintains a condition which breeds them as a public enemy, to be summarily dealt with. At least they should do so.

There is much wasted advice about swatting the fly and trapping the fly. What we must learn to do is to exterminate it, by doing away with all breeding places.

Stables with manure piles that are left unremoved for weeks, garbage dumps and unscreened and carelessly constructed outhouses are the sources of the fly pest. Unpleasant as this may be to hear or read, it is true. Any community which wishes to free itself from flies must eliminate these offensive features.

That flies can and do carry the germs of typhoid fever and other diseases is a matter of definite knowledge. It is a wise mother who screens the baby's crib.

The lives of thousands of children under one year of age would be saved annually if the fly were eliminated.

SODA FOUNTAINS AND SOFT DRINKS.

The soda fountain has become a National institution. However, that fact is not to be taken as a recommendation of the institution. Naturally, during the warm months there is an unusual craving for cool liquids. What the human body really demands in hot weather is water:—cool water, not ice cold. This is a natural demand and one that should be supplied.

We have acquired a taste for sweetened concoctions which masquerade under the names of all the fruits that were found in the Garden of Eden and other mythical ones, never heard of except on soda fountain advertisements. Most of these are chemical products in which no real fruit juice is used. They are not nourishing.

In very hot weather a glass or so of these sweetened liquids will often interfere with digestion and their tendency is to lessen the normal appetite for nourishing food.

Palatable summer drinks can be made with pure fruit juices to which cool water is added. When so made they are far more palatable and refreshing than the sickly sweets which are the common offering of the soda drink emporiums. Ice cold drinks irritate the stomach and sooner or later produce catarrh.

There is another factor connected with the serving of drinks,—soft and otherwise,—which is open to the severest criticism. In many places the provision for the cleansing of glasses is most inadequate. Too often a hasty sousing in a tank of water is the only washing which they receive. It is a well known fact that washing utensils in cold water does not properly cleanse them nor destroy germ life.

The evils of the public drinking cup have been thoroughly exploited. All too often the soda glass comes within this category. Let the Public demand decency in the serving of its soda fountain drinks.

HEALTH: KEYSTONE OF THE ARCH OF PREPAREDNESS.

The perfect manifestations of life can only arise from the harmonious performance of all the functions of the body. This is true from the lowest forms of life up to that complex and wonderful creature—MAN.

Just now, when confronted with war and its accumulated horrors, we must use every effort to throw off the grip which it insidiously and gradually gets upon our nervous systems, destroying the harmony of the millions of little cells which go to make up our bodies.

If the balance and harmony are once destroyed, our digestion weakens. This robs the body of nourishment and is followed by general loss of strength. The heart muscle suffers consequently, grows weak. When this pump fails to send the exhausted blood cells through the lungs for purification and recharging, the pysiological process fails in its purpose.

The break-up of the general balance and harmony causes the body to lose its resistance to disease germs. The result is general weakening of the individual and often death.

Today we cannot fail to feel our great responsibilities and our obligation to make sacrifices for that which gave us our national pride and freedom. At the same time however, we must be careful not to disrupt the harmony of our social and daily occupations, unnecessarily.

If war be long-continued it may be that a governmental state may occur in which our occupations will have to be changed: giving the easier vocations to the weak and shifting those that are more laborious to the strong. These changes, however, can be affected at the present time more easily than ever before in the history of the world, because of the great variety of modern occupations which permit of selection to accommodate different capabilities. Whatever the disturbance may be, we must keep busy and not think too constantly of "what might happen," so destroying that balance and harmony necessary for health.

FOODSTUFF IN WAR TIME.

Food makes the sinew of war.

During the activities of such a war as the world is now experiencing, millions of men and women are engaged in manufacturing munitions for every requisite of warfare, both on land and on water.

Food supplies are the very sinew of war and therefore the guarding of meat, milk, vegetables and grain becomes one of our imperative measures of defense.

Unfortunately, at the present time more than ever before in the history of the world, our people are restless and demand entertainment. Today, they do not as in former times, make their daily occupation their play. For this reason they flock to the centers of population to be amused by various forms of entertainment, robbing the farms and gardens of our country. This we can ill afford at a time like the present.

No one can guess the length of time the United States of America will be obliged to protect herself from foreign interference with her national rights. Today, therefore, is the time to begin to economize in the use of foodstuffs, whose waste is sin.

Gardening and farming furnish health, and profitable activities for women. If the idle women, and those who simply to pass the time engage in sports of various kinds, would spend this time in useful occupations, such as gardening, they would profit physically, mentally and morally, and aid their country inestimably.

This is a time for influential leaders of society to make gardening and farming fashionable among those of frivolous habits. Competitive farming and gardening among women would help to maintain their health and in many cases to make the weak strong. With better health they would find the burdens of life lighter and the nation would be appreciably stronger.

Before the era of apartment houses, almost every family had the facilities for making its own little garden, to produce at least a part of its daily food.

Moderation, co-operation, and the recognition of the necessity for sacrifice on the part of men and women in all classes of society, is the great present need. They must become producers or continue to be burdens on the country in which they live.

A spade, a rake, a hoe and a weeder are all the tools needed to cultivate vegetables in our yards, or on the roofs of our flats.

Our war has been declared just at the proper season to start our gardens. With intensive gardening, even those who never before gave any thought to the subject, will be surprised to find how much a small plot of ground will produce.

INDIVIDUALISM.

When we talk about representative government and the health of our people, we seldom think of our individual parts in the responsibility and efficiency of our Government and its every act.

We are all highly critical of the manner in which our municipalities, state and federal departments are conducted, without a blush for our own failure to engage individually in governmental affairs and to direct them as they should go.

Most of us,—from the time in the morning when we start to look after domestic affairs and those concerning our business or profession, until the day's end,—consider no efforts too great to secure efficiency. The large majority of our voters, however, never stop to weigh earnestly, day by day, the acts of public officials. If we did so, when the time came for nominating officials we would have a record of the men entrusted to take care of our affairs. It is rare to meet men at the polls who can intelligently analyze the characters of those who are to be voted for and entrusted with the care of our lives, our health, our personal and real property and the use of our money, paid over to them in the form of taxes for the upkeep of the things necessary in higher civilized life.

In voting for public officials we should be as careful as we are in selecting banks in which to deposit our earnings.

Concern as to the manner in which our Government is conducted, should occupy some part of each day of our lives, that we may keep in touch with public life as we do with our every day affairs at home and in business. If we neglect to play a part in our Government, it will soon become empirical or run by a few who take but a selfish interest in our affairs.

This same individual indifference toward our duties as members of a representative form of government, is comparable with our neglect of individual health. We rise in the morning, formulate our daily work and look after our social, business or professional duties; but we give little or no attention to the sanitary condition of our homes and the proper treatment of our physical and mental bodies with a view to high efficiency.

Now, in the time of war, let each one of us stop, deliberate and take thought as to the necessity of keeping his body, physically and mentally, in the very highest state of health. It is the sum of the strength of individuals that represents the strength of our Nation.

DRESS.

Unquestionably, Eve was the first human being to concern herself with the matter of costume.

Today, notwithstanding some evidence to the contrary, the primary object of clothing is to protect the body from heat and cold. Man's dress through all ages has of necessity conformed more or less to these practical purposes. True, there have been certain butterfly stages when man's costume competed in elegance and costliness with that of the women of any period, but within the last hundred years the great economic change which has come over a large portion of the world has brought with it a practical standardization of men's dress.

Women's clothing has been and continues to be subject to far greater extremes. It would be most undesirable to take beauty and color out of our lives, but for the sake of the wearer's health, certain reasonable precautions should be observed.

For example, paper soled slippers worn in mid-winter over icy pavements,—as contrasted with necks muffled in fur,—are obviously dangerous as well as ridiculous.

The growing army of women in business, whose occupation demands a more reserved style of dress, will in time exert an influence upon their sisters whose chief aim is personal adornment.

THE EYE AND ITS DANGERS.

If mankind were suddenly to lose its eyesight the race would die. No one can review the ordinary acts of his daily life without a realization of the indispensable part played by the eye in the performance of all of our acts—from the most ordinary to the most important.

The eye is one of the most complicated of organs, and at the same time one of the most exact pieces of animal mechanism that exists. It is much exposed to injury through wounds or by the germs of disease.

Man is not as dependent upon his hands as are the monkeys in the wilds of their native forests, where they travel about by swinging from limb to limb by their hands and tails. If, however, we take account of our daily movements we will realize that our hands are kept busy during our working hours.

To open a door we catch the knob with the hand. To climb into a trolley car we grasp the rail with the hand. These acts and a hundred others like them, thousands of people are performing every moment.

Some of these persons suffer with chronic infectious diseases of the eyes and may, for instance, be on their way to the hospital, not having been instructed as to the character of the malady. Perhaps the sufferer on your car has been wiping his eyes with his hand and has helped himself into the car with the germs of disease upon his hands just previous to your catching hold of the same rail. The only further step to infect yourself with the same disease is to rub your eyes with the hand that has been on the rail.

Notwithstanding this daily danger we constantly see people rubbing their eyes with unclean hands or gloves. If the readers of this "talk" will observe the warning contained herein, many cases of diseased eyes may be avoided.

Needless to say, car rails are not the only means of communicating infection in this way. There are hundreds of others.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909.	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909.	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909.	The Family Physician.
4.	Oct.,	1909.	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909.	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909.	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910.	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910.	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910.	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910.	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910.	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910.	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910.	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910.	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910.	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910.	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910.	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910.	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911.	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911.	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911.	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911.	Health.
23.	May,	1911.	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911.	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911.	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911.	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911.	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911.	The Foundations of State Medicine.
30.	Dec.,	1911.	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912.	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912.	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912.	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912.	How to Organize a Baby-Saving Show.
35.	May,	1912.	Drowning.
36.	June,	1912.	The Health of Suburban Residences.
36½.	July,	1912.	Report of the Austin Disaster.
37.	Aug.,	1912.	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912.	Modern Medicine and the Physician.
39.	Oct.,	1912.	Battling for Health at Mont Alto.
40.	Nov.,	1912.	Tuberculin.
41.	Dec.,	1912.	Conservation of Health. An Address.
42.	Jan.,	1913.	Municipal Sanitation.
43.	Feb.,	1913.	Tuberculosis and our Schools.
44.	March.	1913.	The Relation of the Undertaker to the Public Health.
45.	April,	1913.	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913.	Troy Typhoid Fever Epidemic.
47.	June,	1913.	The Registration of Vital Statistics n Social Service.
48.	July,	1913.	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913.	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913.	Health and Education. An Address.
51.	Oct.,	1913.	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913.	Bathing.
53.	Dec.,	1913.	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914.	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914.	Reproduction and Race Betterment.
56.	March,	1914.	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914.	Insanitary Bath Tubs and Lavatories.
58.	June,	1914.	On Housing.
59.	July,	1914.	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914.	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914.	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914.	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914.	Effective Rural Sanitation. End Results.
64.	Dec.,	1914.	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915.	Present Organization of the State Department of Health.
66.	Feb.,	1915.	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915.	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915.	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915.	Flies as a Factor in Infant Mortality.
70.	June,	1915.	Pennsylvania Health Legislation of 1915.
71.	July,	1915.	On the Medical Inspection of 469.000 School Children in Pennsylvania.
72.	Aug.,	1915.	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915.	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915.	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915.	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915.	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916, Fifteen Little Talks on Health and Hygiene.
85. Sept., 1916, Fifteen Little Talks on Health and Hygiene.
86. Oct., 1916, Fifteen Little Talks on Health and Hygiene.
87. Nov., 1916, Fifteen Little Talks on Health and Hygiene.
88. Dec., 1916, Fifteen Little Talks on Health and Hygiene.
89. Jan., 1917, Little Talks on Health and Hygiene.
90. Feb., 1917, Little Talks on Health and Hygiene.
91. March, 1917, Little Talks on Health and Hygiene.
92. April, 1917, Little Talks on Health and Hygiene.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA
Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 93. HARRISBURG, PA. MAY, 1917

INSECTS.

The Common Forms in Relation to Public Health and Methods for Their Destruction.

The relationship of insect life to public health has been clearly demonstrated by the transmission of the virus or germs of such diseases as malarial and yellow fever by the mosquito, typhoid fever, tuberculosis and intestinal disorders of infants by the common house fly, bubonic plague by the rat flea,—of which there are several varieties.—and the squirrel flea, of which there are several. There are numerous other insects which bear more or less direct relationship of a harmful character to the individual or to the individual's comfort or food and it is necessary to be informed as to the most convenient methods for their destruction.

In order that we may intelligently apply remedies and preventive measures, certain things are essential, such as the proper recognition and identification of the insect, a knowledge of its habitat and methods of reproduction and the method by which it transmits disease to human beings, showing its immediate relationship to the public health and comfort. The mosquito takes the gametes of malaria parasites into its stomach at the time of biting an individual already ill with malaria; from the mosquito's stomach the sporozoites developed from the gametes pass into its salivary glands and are injected into the blood of a new victim at the time of biting. Fleas, flies, ants and other insects spread infectious agents in two ways, first, by mechanical conveyance of bacteria on their external parts and, second, by feeding on organic matter contaminated by bacteria which live for variable periods of times in the gastro-intestinal tract of the insect and are then deposited alive and virulent on the food of its victims or upon their skins. Bacteria on the external parts of the insect and in its dejecta when deposited on the skin at the time of biting, may be rubbed into the wound, causing local or general systemic infection.

With few exceptions, all germicidal agents are also insecticides. The most notable exception is formaldehyde which, though one of our most potent germicides, has little or no effect upon insect life.

It seems desirable, without going into the minutiae of prevention of insect depredations, to give a few brief directions concerning certain insecticide agents which possess the widest range of usefulness and are attended with the greatest economy and ease of application as well as maximum results. These directions will be taken up in the discussion of insects and the method of use of the insecticides outlined.

The use of sulphur is given in some detail on the last pages. Sulphur fumes are destructive for practically all insects.

THE MOSQUITO.

The insect family, Culicidae, has been fully considered in Bulletin 21 of the State Department of Health, Commonwealth of Pennsylvania, March 1911, but presentation of the following methods to prevent development in the various stages seems advisable in this Bulletin.

The campaign against mosquitoes should really be begun in Winter, as at this time the hibernating species are found in houses. Thorough screening of the house with netting or wire screens having 18 to 20 meshes to the inch, will keep the mosquitoes from getting indoors. Should mosquitoes get in through the opening of doors and windows, or through imperfect screening or absence of screens, their numbers can be reduced by the use of a paddle made of an oblong sheet of wire gauze, tacked onto a strip of wood of suitable size to serve as a handle. Daily persistence in this practice will destroy them all. In order to destroy them in the house, either in Winter or Summer, the mixture of carbolic acid crystals and gum camphor which is described under the subject of the House Fly, will be found effectual.

In large cellars several portions should be prepared at the same time, in order to secure equal distribution of the vapor and equal effect throughout the cellar. The smoke from smouldering pyrethrum paralyzes the insect but does not kill and as the stupified insects are difficult to find, this is but a palliative measure.

The burning of jimson weed (stramonium) and saltpetre is recommended. The space to be rid of mosquitoes must be tightly closed so that no fumes can escape for two hours. Three parts of powdered jimson weed mixed with one part of saltpetre is spread in a layer one-half inch thick, on a tin sufficiently large to hold all the mixture necessary; or several tins may be employed. The powder is then lighted in several places and the fumes will shortly penetrate the space, provided at least eight ounces of the mixture be used for 1,000 cubic feet of air space.

The mosquitoes found on the ceilings of bed-rooms in the evening may quickly be killed by means of a shallow tin cup or jelly-glass cover, nailed to the end of a stick and moistened inside with kerosene. This is placed under the mosquito which either falls into or flies against the oil and is killed.

Mosquitoes may be repelled by the burning of Chinese punk and by the less desirable application of equal parts of olive oil and oil of citronella to head, face, hands and ankles every half hour or so. Carrying naphthaline or tar camphor in the pockets is also of some use in keeping mosquitoes from the person. In case one is bitten by mosquitoes the best antidotal application is a diluted solution of ammonia water applied to the bite as soon as possible. However, the most satisfactory means of fighting these insects are those directed to the destruction of the larvae and abatement of the breeding places.

Since the mosquito does not fly more than one-half mile from its breeding-place and apparently only rarely as far as this, it is practically possible for any locality to free itself by bringing about a crusade against the mosquito within its own territory and for one-half mile around the same. The transference of mosquitoes by winds over longer distances may occur and can not be prevented.

Many and sometimes all of the most extensive mosquito breeding areas in or around cities and towns or in a given locality, are so situated that in the course of local improvement they will be done away with through grading or drainage. In the meantime such places are both nuisances and menaces to health; hence every effort should be made to have areas drained or filled in, as the condition may demand, as soon as possible. Should filling in be necessary, much can be accomplished by securing the co-operation of all parties who have ashes or dirt to dispose of and by diverting this material to the mosquito breeding areas to be filled. When the filling in is started the material should be delivered so that the edge of the pool will be the first portion to disappear under the filler. Further material should be added in such a way that the entire pool will be obliterated in the shortest possible time, which means that the material is to be spread out to such a depth that there will be no chance for pools to form. Until such permanent abolition can be secured, kerosene (one ounce to every fifteen square feet of surface) should be applied. In this proportion all larvae and pupae will be effectually destroyed, with the additional advantage of killing the females when they alight to deposit eggs. Usually, an application should be made once each month, though its more frequent use may be advisable under certain conditions. It is more evenly distributed if placed in the water a short distance from the shore line.

Barrels for rain water, if not screened and if provided with outlets at the bottom, may also be treated with kerosene. All standing water should be similarly cared for.

In order to more completely do away with mosquito breeding the co-operation of every householder must be engaged and tenants must be directed either to remove all standing water or to screen it so completely with cheese cloth or other material that mosquitoes will be effectively kept from getting at the standing water.

THE COMMON FLY.

The House Fly (Musca domestica) has been fully considered in Bulletin 23 of the State Department of Health, Commonwealth of Pennsylvania, May 1911. The following methods to prevent development in the various stages and for the destruction of the fly itself seem suitable for presentation in this Bulletin.

The breeding places should be eliminated. The larvae or maggots should be destroyed and the fly should be excluded from homes, markets, etc., and all flies not excluded should be destroyed.

Horse manure bears nearly the same relation to the House Fly that stagnant water does to the mosquito. For this reason, it should be carefully collected in a common receptacle which should be thoroughly screened and made fly-tight in order to prevent egg-laying. The same screening protection or destruction of all garbage, filth and decaying matter of every kind should be made.

Drains and alleyways should be kept clean and free from any of the materials in which flies breed. No privies or closets accessible to flies should be contenanced. If in existence they should be screened. Fresh unslaked lime or kerosene should be poured and spread freely in the privy vaults. The excreta from persons suffering from intestinal diseases should be carefully disinfected immediately on discharge from the body.

All garbage, slops and waste should be kept carefully and tightly covered until removed and destroyed and when taken away the container should be cleaned immediately after the removal of the contents and re-covered or inverted. The container should be elevated a foot or more above ground. The ground contiguous to such containers should be treated with unslaked lime or kerosene.

Cuspidors, especially those filled with sawdust, are very insanitary. All those permitted to be used should contain a 5 per cent. solution of carbolic acid or equivalent cresol preparation, should be cleaned every day, using one of the following disinfectant solutions: Add one-half ounce of chlorinated lime (chloride of lime or bleaching powder) to one gallon of water; or three teaspoonfuls of creolin, or eight teaspoonfuls of a solution of formaldehyde—(at least 37½ per cent. of gas, in solution)—to one pint of water. The solution of formaldehyde is preferred.

The importance of dead or decaying wood or trees has always been overlooked. Flies frequently breed in the crevices; any of the last three named solutions may be sprayed (by using a pump spray atomizer) into such openings.

Flies should never be allowed to settle on food of any kind. All kinds of foodstuffs exposed for sale are potent sources of danger as they are likely to be contaminated by flies which have walked or fed on sputum expectorated on the sidewalk.

Great care should be taken to have all houses screened before fly time arrives and screening should be maintained carefully until winter time. Persons ill with infantile paralysis, typhoid fever, scarlet fever, small-pox, pneumonia, diphtheria, measles and tuberculosis should occupy screened rooms and flies found in the sick room should be immediately destroyed and never allowed to escape. Houses within flying distance of a railroad should be especially well protected as flies contaminated with excreta from passing trains may gain access to the kitchen or dining room.

All milk, especially the baby's milk, the baby's bottle and the baby's bed should receive the same protection, care and attention.

Among the various methods suggested for the destruction of flies, the following will give maximum results:

A piece of wire gauze, eight inches long and five inches wide, tacked to a wooden handle about fourteen inches long, makes an effective beater for striking and killing.

Pyrethrum powder heated in a pan or on hot coals, so that it smoulders but does not burn, will give off a dense white smoke that paralyzes flies but is otherwise harmless; one ounce to every 1,000 cubic feet of air space should be used and the flies promptly swept up and destroyed. The best results are obtained if the room is darkened, leaving only a ray of light to enter at the window shade, as under these conditions flies usually accumulate on the ceiling where the maximum effect of the smoke is felt.

The value of sticky fly-paper and fly-traps is known universally by housekeepers. There are perhaps no other agents equally useful for the purpose.

Formaldehyde added to sweetened water and placed in open saucers about the house or in saturated sponges in shallow dishes, may be tried.

The formaldehyde solution should be added to the sweetened water in the proportion of a tablespoonful to the pint of water. The liquid formaldehyde as sold in the drug store should contain 37 per cent. of the gas.

The fly may be attracted by sprinkling a little sugar on the dish containing the liquid.

An excellent solution is prepared by adding one dram (one teaspoonful) of bichromate of potassium to two ounces of water; or if a larger quantity is desired, 1 oz. to 1 pint of water, which has been sweetened with sugar. This, placed in shallow dishes throughout the house, will not harm children should they get hold of it. It is a cheap solution and may be obtained at any drug store.

Cobalt chloride in the strength of one dram to 6 ounces of sweetened water is just as effectual, is non-poisonous but is more expensive and much harder to obtain.

Another efficient method is by using a mixture of equal parts (by weight) of carbolic acid crystals and gum camphor. Liquify the carbolic acid crystals by gentle heat, break up the gum camphor into small pieces and pour the liquid acid slowly over the camphor. The acid will dissolve the camphor completely and the resulting liquid is permanent and only slightly violatile at ordinary temperatures. It volatilizes rapidly, however, in a shallow tin over the flame of an alcohol or other lamp and the vapor is death to flies. Three ounces will suffice for one thousand cubic feet in a tightly closed room and it will require about half an hour to evaporate that amount. The vapor is not poisonous to man and is not destructive to materials or fabrics. It is not explosive but is inflammable and should be used with that fact in mind.

Disposal of Manure in Rural and Suburban Districts.

Manure should not be allowed to remain in one place unless it be properly screened or treated chemically to destroy house-fly larvae.

If for any reason it cannot be promptly spread on the fields and turned under ground, it should be treated with either powdered hellebore or borax. The former should be used in the strength of a half pound of the powder to every ten gallons of water. After stirring it should stand for twenty-four hours before being used. The mixture should be used at the rate of ten gallons to eight bushels of manure.

Commercial borax is also an effective remedy. It may be used at the rate of one pound to sixteen cubic feet of manure. It can be applied in solution or scattered evenly over the manure and then sprinkled with water. Hellebore is not injurious to vegetables when it is in treated manure but borax should not be used stronger than recommended as it may injure certain vegetables when the manure is used as a fertilizer.

In order to avoid destruction or injury of the fertilizing qualities of manure while treating it to prevent fly breeding, considerable experimentation has recently been carried on.

The United States Department of Agriculture, after experimentation with various plant infusions and other substances including sulphur, had no results as satisfactory as the hellebore and borax treatments, except with a mixture of common fertilizer ingredients used in making artificial fertilizers. These ingredients are calcium cynamid, acid phosphate and kainite and they are used in the proportion of two pounds of acid phosphate, 1 pound of calcium cynamid and one pound of kainite to four square feet of exposed manure in boxes or pits. Naturally, the economy of the different processes will have much to do in determining a choice.

Things to be Remembered for the Prevention of Flies.

First: Flies can only breed in filth of the kinds mentioned and their presence is evidence that such material is at hand.

Second: They carry germs of disease on their hairy bodies and legs.

Third: Keep them away from the sick, particularly those suffering with communicable diseases.

Fourth: Do not allow them to settle on the mouth, eyes, ears or nostrils of infants.

Fifth: Do not permit them to come in contact with food of any kind or to settle on the milk bottles of infants.

Sixth: Open privy wells or cesspools are particularly dangerous. Sanitary closets should be used, with self-closing seat covers and fly-screened openings.

Seventh: Uncovered or unscreened garbage cans and open drains should not be permitted.

Eighth: Physicians should see that the excreta of all persons ill with intestinal diseases are disinfected and cared for in accordance with the regulations of this Department.

Ninth: Manure should be collected twice a week and plowed into fields or stored in fly-proof receptacles.

FLEAS.

These insects, whose zoological classification has placed them among the Siphonaptera, number in kind over one hundred, all of which live on mammals and birds. Their importance in transmitting disease has been demonstrated in the studies of bubonic plague in California and Washington and also in India. This disease appeared in the United States in 1900 causing 113 deaths in 119 cases; in 1907-1908 there were 77 deaths in 159 cases. The common means of transmission was found to be by means of rats, mice and ground squirrels and the transmitting medium between these affected animals and human beings was a species of flea, designated as *Pulex fasciatus* and also called *Loemopsylla cheopis.*

The flea is a wingless, parasitic insect having a laterally compressed body of a dark reddish color and legs specially designed for leaping. It is provided with a puncturing and sucking apparatus with which it imbibes blood and lymph from its victims. It mostly infests warm blooded animals. It is a common opinion that each species of mammal has its own peculiar flea and while a great many different varieties have been described, some of which are peculiar to certain mammal forms, one species of flea may infest a great many different species of mammals, passing rapidly from one animal to another. The common forms which trouble American homes are the House Flea *(Pulex irritans)*, the Cat Flea *(Pulex felinis)* and the Dog Flea *(Pulex canis)*.

Each female deposits from eight to twelve whitish, ovoid eggs, the favored place being in dust or lint, under carpets and in the larger crevices of wood work. In Summer time the larvae issue in four to six days, passing into the pupal stage eleven days later. About twelve days later they become adult fleas; hence the time for development is about four weeks. In the Winter it usually averages about six weeks. As a rule four to six broods from each female are hatched out during each Summer season.

The House Flea, as indicated by its name, occurs principally in human habitations, secreting itself in bedding, clothing, carpets and window hangings, from which it attacks its human victim, especially at night. It is distributed widely and sometimes becomes a serious pest, in spite of the most rigid cleanliness. Well defined flea pests have occurred, especially in certain sections of Philadelphia. The Cat Flea and Dog Flea rival the House Flea and though they usually adhere closely to their particular hosts, are frequently as troublesome to human beings as is the House Flea.

Old floors, mattings and carpets favor their development as the young larvae easily penetrate the crevices and interstices where undisturbed development takes place. Places frequented by them should be thoroughly cleaned, using boiling hot water and kerosene mixed with cresol preparations, or dusting freely with pyrethrum powder, especially in the crevices and openings where dust and dirt may be lodged. In the adult stage fleas are more difficult to destroy, even with the persistent use of pyrethrum. Kerosene however is immediately destructive; or the free sprinkling with gasoline or benzine may be tried. All carpets and hangings should be removed and cleaned and all surfaces should be scrubbed thoroughly with hot soap suds.

On animals they are readily stupified by dusting pyrethrum powder into the hair. The fleas will fall off while stupified and should be immediately swept up and burned. Resting or sleeping places for infested animals should be carefully provided with straw matting or pieces of carpet, as they can be readily shaken into the open fire and the eggs, larvae and fleas with which they are usually covered, destroyed by fire. Dogs should be washed with carbolic or cresol soaps, using a thick lather freely applied. Liquor cresolis comp. is a suitable preparation.

There is large difference in the liability of different individuals to flea bites and marked variability in the results. One victim may totally escape; another may have slight temporary discomfort;

while others suffer severely. Scratching the bites, with secondary infection of the wounds, has caused serious consequences. The best antidote for a bite is some alkaline wash, such as ammonia water: other lotions may be used to relieve the local itching and distress and to act as antiseptics to prevent secondary infection. Such lotions may be made up of a 5 per cent. solution of carbolic acid in water or the same solution containing menthol; or a 5 per cent. solution of menthol in alcohol. Aromatic Spirits of Ammonia to which menthol to the amount of one per cent. has been added, is useful in allaying pain or itching from insect bites.

CAUTION: Benzine and gasoline are highly inflammable.

COCKROACHES.

These insects, of the family Blattidae, number nearly a thousand in variety of species. Very few species, however, live in association with human beings. The common variety in Pennsylvania is the American roach (*Periplaneta americana*) and the "black beetle," *(Blatta orientalis)* which are common in many kitchens. The American roach is uniformly of a dark brownish color, broad and flattened in shape, and hard and smooth to the touch. The young are much like the adults. The latter are hatched from eggs, which are contained in a horny capsule, deposited by the mother in the darkest places of concealment which can be found. On hatching, the young are often brooded by the parent during the earlier weeks of life. They pass through a variable number of molts before reaching the adult stage. The length of life is long and in some species is said to be four or five years. It is likely that not more than one brood is developed each season, and then only during the warm weather, as they are particularly sensitive to cold.

In houses, roaches are particularly abundant in pantries, kitchens and in the walls near stoves and fireplaces. They are often abundant in oven rooms of bakeries or wherever the temperature is maintained above normal. During the day they conceal themselves wherever protection from natural enemies and from light is afforded. Because of their shape, they can squeeze into very small crevices. When surprised, they seek shelter with a scurrying gait and usually escape capture or destruction.

They are practically omnivorous, feeding on dead animal matter, cereals and any form of food materials; they also eat woolens, leather, the cloth and leather bindings of books (because of the paste) and occasionally turn cannibal.

If there were no evidence to indicate that they transmit disease, the soiling and rendering nauseous of everything with which they have contact makes their destruction a matter of public comfort. However, they are potential carriers of pathogenic bacteria to exposed food and doubtless convey several diseases in this way. They give off a fetid, nauseous odor which persists after most persistent cleaning. Food supplies are tainted, shelves and dishes stained and the atmosphere made almost unbearable, which in part is from excreta but for the most part from an oily liquid secreted in the scent gland and a dark colored fluid from the mouth.

It is difficult to get rid of these pests. They have few natural enemies, an ichneumon fly and the tree frog being the only ones known. They readily detect poisoned foods, avoiding arsenic and other common poisons. The smoke of pyrethrum powder (described under The House Fly) will paralyze but not kill them. Flowers of sulphur dusted along the baseboards repels them, as also does phosphorus. The latter, of 1 to 2 per cent. strength, made into a paste with sweetened flour, will destroy many; to make the paste take one-fourth teaspoonful of phosphorus, two level tablespoonsful of flour, mix and make into a paste with well-sweetened water. The fumes of bisulphid of carbon in the proportion of one pound to 1,000 cubic feet of air space (if the room is sealed) will destroy every roach. As this is an explosive in the presence of fire, great precaution is necessary.

A food prepared by taking one part of plaster of Paris and three or four parts of flour in one saucer, with plenty of water in another saucer and bridged for easy access, makes a simple remedy. The insects readily eat the mixture and drink freely. The plaster sets and clogs the intestines. The dead bodies disappear, in all probability being eaten by the survivors. Finally, ingenious traps have been contrived, the simplest of which is the use of a quart fruit jar. The jar is partially filled with stale beer and inclined so that it is easy of access but prevents the roach from escaping. A rough stick leaned against the opening, serves as a gang-plank. Once in the jar the insects perish or are easily destroyed.

CAUTION: Phosphorus is very inflammable and very poisonous.

THE BED BUG.

(Acanthia Lectularia). (Cimex lectularius).

The bed-bug is a small but plainly visible ovoid shaped bug having a peculiarly disagreeable color. It is of a reddish brown or rusty color, with some black coloration on the abdomen and is provided with a puncturing and sucking apparatus. The young is similar in all details to the adult. The eggs or nits are small white oval objects which are laid in batches of from 6 to 50, in cracks and crevices of furniture, walls or floors. There is an average hatch of several batches during each season and it takes from seven to eleven weeks for development from the egg to the adult stage. There is a wide variation in the egg laying and hatching, dependent on weather conditions, but it is customary to look for a new brood about every eleven weeks. However, it has no fixed period of the year for its development, generations succeeeding one another as long as the temperature is sufficiently elevated. During cold weather the insect merely becomes stupefied. This hibernation occurs in different places of concealment where large numbers congregate until the return of warmer conditions.

It is peculiar to the habitations of man. Nothing is really known as to the origin of this insect but it is very widely distributed. Other species of the same family are said to frequent birds, particularly the common chimney swallow, pigeons and bats and they are very similar to the common bed-bug.

It is nocturnal in its habits, seeking its place of concealment during the day. It normally feeds on human blood but there is some evidence that it can feed on foods similar to those used by other insects. It thrives particularly well in filth and old houses and has been kept alive without food for one year.

It is said to be instrumental in transmitting certain contagious diseases and there is some evidence that small-pox has been so communicated. Drs. Smith and Dixon conducted investigations in the Laboratories of the State Department of Health of the Commonwealth of Pennsylvania in 1905, seeking to determine whether or not bed-bugs transmitted smallpox. The possibility of bed-bugs conveying relapsing fever, typhoid fever and leprosy has been suggested and in the case of relapsing fever has been practically established.

The bite is distinctly poisonous to many individuals, resulting in a local inflammatory reaction. This is probably due to the same secretion which gives the characteristic odor.

On account of the places of concealment in the floors and walls the bed-bug is not reached by ordinary measures; on brass and iron bedsteads it is easy of access, while it is somewhat more difficult in old wooden bedsteads and at times it is impossible to destroy it or the eggs in the crevices of old walls and floors. In order to effectually get rid of this pest, it is necessary to establish a vigorous campaign with daily inspection and destruction of all of the eggs as well as the bugs which may be found.

For use on bedsteads and available crevices one of the best measures is hot water. A practical treatment is to make liberal applications of benzine, gasoline or kerosene, either used alone or made up according to the following formula.—

*Oil of mirbane, ¾ ounce,
Crystallized Carbolic Acid, 1½ ounces,
Kerosene (or Benzine), 32 ounces.

Add the oil of mirbane to the kerosene; stirring slowly; liquify carbolic acid crystals by standing container in hot water. Then add to the mixed oils, stirring rapidly.

This mixture should be introduced into all crevices with feathers, small brushes or small spray syringe, as a rose bush syringe, which may be purchased at a seed store. A cheap atomizer gives very satisfactory results.

For use in mattresses and beds the following may be used:—

Sodium Chlorid (common salt), ½ ounce.
Bichloride of Mercury (corrosive sublimate) ½ ounce,
Water, 2 ounces,
Alcohol, 2 ounces.
Spirits of Turpentine, 6 ounces.

Gasoline used by atomizer or by direct application, is readily obtained and applied and is perfectly satisfactory, having always in mind its explosive and inflammable properties.

CAUTION: These preparations are *poisonous* and *inflammable*. No open lights or flames should be permitted in the room.

Pyrethrum, either as powder or in decotion, is practically of no avail. It forms the basis of most of the patented bed-bug "exterminators."

In rooms containing books or where liquid applications are inadvisable, a thorough disinfection with sulphur is an effective means of destruction, the method of which is described in detail on the last pages.

To secure permanent results sulphur fumigation must be repeated to destroy successive broods of insects, hatched subsequent to room fumigation, from eggs present in the walls, wood work and crevices.

---

*Oil or essence of mirbane is poisonous. It is nitrobenzine or artificial oil of bitter almonds.

HOUSE ANTS.

(*Monomorium Pharaonis*).

There are a number of species of ants which infest our homes but the chief offender is the small red ant which passes its entire existence in houses. The larvae and pupae (commonly called the "eggs") are minute, whitish, oval objects which are produced in enormous numbers by the solitary queen-mother. They are deposited in the walls or under the flooring only during the late spring and the summer months.

The ant is not inimical to health nor is there evidence at present that it acts as a host to transmit the cause of disease. Its chief claim for consideration and destruction is its mere presence in articles of food, particularly sugar, preserves, and other sweets. When one ant has discovered such foods, the news is quickly spread and soon the supply is covered or filled with an entire colony.

In order to get rid of such invaders it is of first importance to keep food products in tight receptacles and to remove sugar and sweetmeats scattered by children. Several methods to destroy them have been suggested, and as temporary measures, when the nest cannot be located, the following may suffice:

Moisten a sponge with sweetened water; when filled with ants, drop into boiling water.

An ingenious method has been described as follows: A groove large enough for the passage of a single ant, is made in an ordinary cork. The bottle is partly filled with sweetened water and a thread moistened with the preparation passes from the floor to the passage through the cork. When the ant within the bottle is once gorged with food he cannot get out. Thousands may be trapped in this way. Several of the traps may be prepared and enough time allowed to elapse for the ants to swarm into the openings.

However, the only thorough extermination is the destruction of the colony and its nest. There is no means of locating the latter, except by following the ants back to their point of disappearance. Bisulphid of carbon in liberal quantities (about two ounces) is then poured into the region of the nest. This substance is so penetrating that its work is thorough, if the nest is properly located.

The small black ant (*Monomorium minutum*) and the pavement ant (*Tetramorium caespitum*) sometimes become house nuisances, though the colonies are under stones, in the ground and under pavements. The latter are recognized by the small pyramids of grains of earth which surround the excavations. The destruction of the colonies by kerosene or carbon disulphid usually exterminates these species.

CAUTION: The fumes of bisulphid of carbon are explosive in the presence of any fire or open flame. Care should be taken that none are present where this chemical is used.

LICE.

The importance of the louse as a disease transmitter has been demonstrated in recent investigations of tabardillo, (Mexican typhus fever), which is also known as American typhus fever. In studying the identity of this disease with Brill's disease, it has been shown that "the body louse is probably the *usual* distributing agency" and the head louse is also believed to be an agent.

There parasites belong to the class insecta, family Pediculidae, and pass the whole of their existence on the mammalian forms Very few of the species are ever found upon other species of animals than those which they normally infest. Those infesting man are approximately one-tenth of an inch in length and can be readily found on close observation of the scalp or clothing. They are rarely found on the uncovered skin. It should always be borne in mind that lice must grow from eggs laid by an adult louse and can never originate from filth or other matter. They hatch out within a week and the young are competent to reproduce in less than two weeks. A single adult female is capable of producing a progeny of 5,000 within eight weeks.

The annoyance and inconvenience of their presence may be the only ill result, but in many individuals this leads to sufficient nervous irritation to cause ill health. Scratching, with secondary infection, especially in children of low physical resistance, has led to serious consequences. Such an occurrence in Pennsylvania on three members of one family led to a temporary diagnosis of smallpox, causing in addition to the illness, great social and domestic inconvenience, mental distress and interruption of education.

While the symptoms caused by lice are much the same in the three varieties described below, they are somewhat influenced by the locality invaded and hence the three types are best described separately:

THE HEAD LOUSE. *(Pediculus capitis).*

These forms are grayish in color with blackish margins but after feeding may be of slight or decided reddish tinge, due to imbibed blood. The ova or "nits" are found attached to the hair shafts on the scalp at some distance from the head and are minute white or grayish pear-shaped bodies, visible to the naked eye.

TREATMENT. It is desirable to destroy both lice and nits in as short time as possible. For this reason the following treatment is recommended: Wet the hair thoroughly with crude petroleum, which may be obtained at any drug store. Keep it wet for three hours, then wash the whole head with warm water and soap. Repeat this process on three successive days. The nits may then be removed by combing the hair very carefully with a fine tooth comb wet with vinegar. If there is no objection, treatment is made easier and more thorough by cutting the hair short. All persons in a family are likely to be afflicted, hence every member should be treated as above. Brushes and combs should be cleansed (before and after using) by putting them in boiling water for a few minutes. Equal parts of commercial ether and tincture of larkspur make an effective head cleanser. Kerosene is likewise effective.

THE CLOTHING OR BODY LOUSE. *(Pediculus vestimenti).*

This parasite belongs to the same family as the head louse but it is somewhat larger and is found commonly on the body, where it goes for the purpose of feeding only. In the adult form it can be differentiated from the head louse by dark tranverse bands across the back. Reproduction for the most part occurs in the various folds and seams of the clothing; however, it has been observed that some of the ova or nits are attached to the fine hairs (lanugo) of the body surface.

As the parasites live in concealed portions of the clothing and especially where the skin is most conveniently reached, the various lesions are to be found most often on those parts; such as around the neck, across the shoulders, the upper part of the back, around the waist and on the outside of the thighs.

Treatment should be directed to the infested clothing where the parasite and nits are to be found. All garments should be thoroughly baked, boiled or gone over with a hot iron in order to destroy them.

However, a general tub bath of corrosive sublimate, is advisable because of the nits which are attached to the finer hairs; eight tablets of bichloride of mercury, 7.5 grains each, to a tub of water makes a strong enough solution for this purpose. In all cases soap and water baths of the entire body, twice a day, should be insisted upon. Bathing with saponaceous solutions like lysol or liquor cresolis comp. is useful.

THE CRAB LOUSE. *(Phthirius inguinalis). (Pediculis pubis).* This is a smaller species of the same family as head or body lice but is quite distinct on account of its shape, being nearly as wide as long. The strong legs, spread out laterally, give the lice the appearance of crabs. They are of whitish color, somewhat shaded on the shoulders and the legs are of slightly red tinge. Each is about one-tenth of an inch in length.

They are to be found on the various hairy regions of the body other than the scalp, but do not thrive among the fine hairs of the head, though they have often been observed in the eyebrows.

TREATMENT: Repeated washings with vinegar or diluted acetic acid will free the hairs of ova. This should be followed by careful daily shampooing of all the regions involved. After the shampoo a solution of corrosive sublimate containing one tablet of 7.5 grains to a pint of water should be freely applied. If not desirable to use the mercury wash, pure tincture of larkspur, or a lotion consisting of tincture of larkspur, ½ ounce, commercial ether, 8 ounces, or a stronger solution, consisting of equal parts of the two ingredients may be used, afterwards covering the parts with a closely applied dressing.

Mercurial ointment is effective but dirty and unpleasant to handle.

A vinegar and kerosene mixture is also effective.

Liquor cresolis comp. in water, worked into a thick lather and freely applied, is useful. It should be washed off the skin before irritation and redness result. This precaution should be taken after corrosive sublimate solution applications, all kerosene applications and in fact all irritants.

CAUTION: Corrosive sublimate (bichloride of mercury) is a powerful poison; ether and kerosene are highly inflammable.

THE ITCH MITE. (*Sarcoptes scabiei*).

Infection by this mite (which really is not an insect) is so common that it is considered advisable to include it in this Bulletin.

The species of the mite which afflicts man *(Sarcoptes scabiei)* is the minute tick which gives rise to the condition commonly known as "Itch," "Seven Year Itch," "Army Itch," "Jackson Itch" and many other synonymous names. It has an oval body with marked spinus projections. The female is larger than the male and is 1-70 of an inch long by 1-50 of an inch wide. It is really the female alone which causes the phenomena which lead to its discovery; it burrows into the superficial skin forming a tortuous or, at times, a straight, dotted, slightly elevated line which varies in length from one-eighth to one-half inch. On close observation it will be seen that the burrow is dark gray or blackish in color, thread-like and it may be slightly more elevated at one end. It is in this that the eggs are deposited and the elevated end of the burrow usually contains the female, which in the vast majority of instances has already perished. As the mite extends its channel into deeper portions of the skin and as the eggs hatch, the young feed upon the surrounding tissues; when fully grown they wander out and mate on the surface of the skin, after which the females begin a fresh burrow. The ova hatch out gradually, taking an average of five or six days to reach the adult stage.

It is commonly transmitted from one individual to another either by occupancy of the same bed or of a bed on which the linens have not been changed. There is some reason to believe that it is transmitted by the use of the common towel and also by shaking hands. It is commonly found in the moist surfaces of the body. such as between the fingers, hands, folds of the wrist, in the folds under the shoulder, lower portion of the abdomen and about the neck. Its entire existence is spent on its human host. It is believed not to have any power to transmit disease but may be inimical to the health of the individual because of the secondary infection of the burrows caused by the mite and the excoriations produced by scratching. In addition to the injuries produced by scratching there are papular or pustular lesions of varying degrees throughout the affected regions.

Mites are usually better able to thrive in insanitary conditions. In order to destroy them, it is necessary to have all bed linens and clothing used by an individual already infected, thoroughly boiled or baked. If woolens are in use, they should be baked or thoroughly ironed with a hot iron. The patient should have a hot bath and be rubbed down with a coarse wash cloth or brush which serves to open up the burrows and expose the eggs for destruction. After the bath an ointment should be rubbed in, made up after the following formula:

Sublimed sulphur—one dram (1 teaspoonful).
Balsam of Peru—one dram (1 teaspoonful).
Vaseline—one ounce (2 tablespoonfuls).

This should be repeated morning and evening for from two to four days. In particularly serious cases it may be necessary to repeat this entire treatment after the lapse of one week.

SULPHUR DISINFECTION.

Sulphur fumigation is most useful for the destruction of insects and vermin but when used for this purpose all rooms in the building should be disinfected simultaneously.

The room to be disinfected should be sealed with strips of gummed paper or strips of paper and home made flour paste, closing flues, chimney places and all visible cracks and crevices about the walls. Or the same openings should be stuffed or caulked with cotton by using a table knife.

Strip and take apart beds; stand mattresses on end; open closets, bureau drawers and trunks, spreading their contents about the room.

Fabrics, especially carpets, and bed and body clothing should be fully unfolded, suspended upon chairs, clothes lines and bedsteads,—exposing all surfaces to the fumes of the gas.

At least three pounds of flowers of sulphur should be used for every 1000 cubic feet of air space.

Bricks should be placed on edge in the bottom of a metal tub containing 4 inches of water. (Moisture is necessary to render the fumes of sulphur effective).

An old iron kettle or other vessel, in which the sulphur is to be placed, should then be set on the bricks.

The sulphur in proper proportion is then ignited by lighting a small quantity of alcohol which is placed in the center of the sulphur A hasty exit should be made by the disinfector, after assuring himself that ignition has occurred.

The door is then to be sealed on the outer side and the room should remain closed for a period of at least twenty-four hours.

The room should then be opened and if possible should be thoroughly aired before it is again occupied.

CAUTION: It should be remembered that sulphur fumes will tarnish metals and are injurious to the coloring matter and tensile strength of fabrics. Metal fixtures which cannot be removed may be covered with a protective coat of vaseline or lard.

OTHER MEASURES.

In view of the enormous war time increase in the cost of many chemicals used as disinfectants and suggested in the foregoing pages, the question of expense just now takes on an unusual prominence. It seems wise therefore to call attention to the disinfectant, germicidal and larvacidal virtues of heat, especially as applied in the form of boiling hot water. Except for application to human tissues this agent (boiling water) has a wide field of usefulness, not properly appreciated. Steam and dry heat are also to be remembered and the actual flaming of surfaces, as with a gasoline torch, and the burning of kerosene on ground surfaces should be borne in mind as valuable methods in this time of exorbitantly priced chemicals.

As a substitute for pure phenol or carbolic acid we may use with great advantage one of the various crude derivatives from coal tar, rich in the mixed cresols and phenols. These are marketed under various trade names but have a similarity of composition, being generally made from coal tar liquid by-products with additions to render them saponaceous and miscible in water.

The coefficiency as compared with pure carbolic acid varies from 2 to 10, which means that they are from 2 to 10 times as powerful germicides as pure phenol or (carbolic acid). They may therefore be used with confidence in solutions of from one-half per cent. to 3 per cent. Some of the trade names suggest through their first syllable the name "cresol" (the most active constituent in all of them). They are blackish-brown, syrupy preparations rich in cresols and phenols and are saponaceous from added (alkali) soap elements, so that upon addition to water a soapy emulsion results.

This mixture is readily applied by spray pumps, brooms, brushes or sprinkling pots and is less poisonous and less harmful to the hands than carbolic solutions or formaldehyde, while at the same time destructive to germ life.

The larvacide mixture used upon the Panama Canal Zone is a compound of this character and is made as follows: 200 pounds of finely crushed and sifted common rosin are dissolved in 150 gallons of heated crude carbolic acid and 30 pounds of caustic soda, dissolved in 6 gallons of water, is addded. Mechanical stirring and heat produce the finished product in a short time. The cost is much less than the cost of purified chemicals usually used as disinfectants or germicides and if made in quantity it is doubtless less expensive than the similar commercial products on sale. As a mosquito larvacide, for the prevention of fly breeding, the destruction of fleas, and as a general disinfectant and deodorant in privy vaults and similar places it is most valuable. It may be used mixed with water in varying strengths, applied by spray pumps, sprinkling pots or dippers or it may be used in small amounts in full strength for intensive disinfection. One barrel of the mixture would make 20 barrels of a 5 per cent. mixture—an average strength for general use. This larvacide and disinfectant mixture can of course be made in any amount. If an amount is desired less than that called for by the above formula, any fraction of all the above quoted amounts may be taken; as for example one-tenth.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914.	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
72.	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
73.	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
74.	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77. Jan., 1916, The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78. Feb., 1916, The Sanitary Index. A Method of Measuring Public Health Work.
79. March, 1916, Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80. April, 1916, Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81. May, 1916, The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82. June, 1916, Fifteen Little Talks on Health and Hygiene.
83. July, 1916, Fifteen Little Talks on Health and Hygiene.
84. Aug., 1916, Fifteen Little Talks on Health and Hygiene.
85. Sept., 1916, Fifteen Little Talks on Health and Hygiene.
86. Oct., 1916, Fifteen Little Talks on Health and Hygiene.
87. Nov., 1916, Fifteen Little Talks on Health and Hygiene.
88. Dec., 1916, Fifteen Little Talks on Health and Hygiene.
89. Jan., 1917, Little Talks on Health and Hygiene.
90. Feb., 1917, Little Talks on Health and Hygiene.
91. March, 1917, Little Talks on Health and Hygiene.
92. April, 1917, Little Talks on Health and Hygiene.
93. May, 1917, Insects.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.

PENNSYLVANIA

Health Bulletin

PUBLISHED MONTHLY BY THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D., Sc. D., COMMISSIONER

No. 94. HARRISBURG, PA. JUNE, 1917

TYPHOID AND TYPHOPHORS.

It is always a pleasure to participate in these annual meetings of the State Medical Society. When some time since I promised to read a paper before you I had hoped to speak at length on the subject of Typhoid Fever. I did not know then that I was to pass through the strenuous weeks which have recently been my lot. The result is that I have not been able to prepare such a paper as I had in mind and to present at length certain scientific aspects of the topic which I had hoped to include. There are, however, some facts concerning the work of the Department of Health relative to Typhoid Fever which I should like to bring to your attention, and I shall also speak more particularly of several outbreaks which have peculiar interest and which for the most part have not been published.

My appointment as Commissioner of Health was made by the late Governor Pennypacker in June, 1905. In this month the members of the Advisory Board of the Department of Health were also appointed, three of whom are still members of that body.

The organization of the Department, in which Governor Pennypacker showed keen interest, was undertaken at once and in a short time we were busy taking care of various outbreaks of communicable diseases. Among these early epidemics the most notable, although not the earliest, was the occurrence of typhoid, at Nanticoke, at the beginning of September. Many others followed but it was as yet

---

Read by Samuel G. Dixon, M. D., LL. D., Sc. D., Commissioner of Health at the Annual Meeting of the Medical Society of the State of Pennsylvania at Scranton, September 20, 1916.

impossible to determine the full significance of our efforts or to measure such success as we attained.

The reason for this was that we had no statistical basis for such measurements. As I pointed out in my first annual report, speaking of typhoid fever, we only knew that Pennsylvania stood high in the list of States having a large typhoid death rate, "but what the actual mortality was no one knew or could do more than make a very wide guess at." For the larger cities we had death rates which were sufficiently appalling, but even from them morbidity statistics could not be obtained.

Our Bureau of Vital Statistics began its work directly after the organization of the Department but the establishment of a corps of local registrars, on whom the collection of statistical information necessarily depends, required, of course, much time. Consequently it was not until the beginning of the next year that the material became available for any general comparison and thus the year 1906 is the first year for which we have statistical information concerning mortality and morbidity in the State as a whole. Thus it comes that although the Department has existed somewhat more than eleven years our statistical period is shorter.

Consider briefly, without long tables of figures, what our statistical showing is for typhoid fever. We began in 1906 with nearly four thousand (more exactly 3,917) deaths from this disease, that is almost fifty-five (54.8) in a hundred thousand. Last year (1915) such deaths numbered one thousand and twenty-five (1,025) or at the rate of slightly over twelve (12.2) in a hundred thousand. The reports for the present year (1916) indicate that the rate will show no marked change unless large outbreaks occur in the last quarter of the year. This means that the deaths now attributed to typhoid fever are only a fourth of those of 1906 (or, if you will, 26%), and the rate for such deaths is well under a fourth of that of 1906 (more exactly 22.3%).

One is always tempted to ask what the deaths would be if there had been no change of rate in the past ten years.

The estimated population of the State is now a million and a quarter greater than in 1906, so that at the earlier rate we should have had in 1915 nearly forty-six hundred deaths (precisely 4,594) instead of a thousand and twenty-five (1,025).

Similar is the story of the morbidity. In 1906 nearly twenty-five thousand persons (24,471) were reported sick of typhoid fever; that is about three hundred and forty-three (342.6) in every hundred thousand. Since then the morbidity has almost steadily declined and in 1915 only a few more than eight thousand (8,048) were thus reported—a shade under a third (exactly 32.8%) of what it used to be—and at the rate of ninety-six in a hundred thousand, a drop in the rate to less than three-tenths of the old rate (28%)—or, again, only eight thousand were ill where nearly twenty-nine thousand (or 28,724) were to be expected. The cases of 1916 thus far tabulated indicate little change in the rate. These figures permit another interpretation. They mean that over twenty-two thousand persons (22,441, if you prefer) have not died in Pennsylvania as they might have been expected to do under earlier conditions—have been "saved," as is sometimes said—and about six times as many (more precisely 132,980) have been spared an experience of typhoid fever. Doubtless this salvage would be far greater if our figures went back further. What these gains signify to the State I will leave to your imagination, and am sure that no right-minded physician will feel any regret that all these persons have also escaped many bills for medical attendance. They have at least been able to acquire other diseases.

Far be it from me to suggest that all this gain as to mortality and morbidity is due to the activity of the Department of Health. Our protection of the water supplies by inspection and the abatement of nuisances, and the restraints which have been placed on the flow of sewage into our streams have undoubtedly done much to lessen the menace to public health which formerly existed and is not yet completely removed. In other ways we have probably contributed by the lessons taught to communities in which epidemics have occurred and have been under our supervision. In yet other places our inspections and instructions may have been helpful. But there have been other important influences at work which must be looked upon as contributing to the decline of typhoid fever in Pennsylvania. In this period you practising physicians have done much to spread abroad the doctrines of sanitation and this must have been an important factor in awakening the public to an appreciation of what a community may do to avoid sickness.

I have already mentioned the fact that the rates for mortality and morbidity promise to be about the same this year as last. This is not to be taken as an indication that a limit or a dead point has been reached in the decline. There are still too many conditions in play to bring about an outbreak of typhoid fever to permit us to believe that we have anywhere near completed the preventive measures to be adopted. There are also sure to be numerous ambulant cases which come to us from the outside and may do much harm before detection. Yet other external sources exist from which typhoid may come into Pennsylvania through food or drink without being easy of recognition.

Another source of danger against which no adequate protection has been found is the "carrier." So numerous are the diseases which are known to be distributed by carriers (or germifers, to use a term which has been suggested as a general name) that it is becoming desirable to have a special name for one who "carries" typhoid fever. For this kind of a carrier the word *typhophor* is proposed as brief and distinctive.

The person who is a typhoid carrier or carrier of typhoid bacilli or, more simply, a typhophor, is at present a very dangerous person although commonly a thoroughly innocent person,—one who is likely to need sympathy in growing measure. The Department has had occasion to deal with many outbreaks where such an agent was involved and some of these call for a brief presentation which may be profitable at this time.

Cases of typhoid fever more or less clearly suggesting the influence of a carrier have been numerous, but clean-cut demonstrations of this source of infection have not been equally numerous in the experience of the Department of Health.

Last year we had occasion to investigate the prevalence of typhoid fever at Newport in Perry County. This place with a population of some two thousand had been particularly free of typhoid for many years until the brief outbreak in which the onsets began in the middle of April and kept coming for nearly three weeks. There were sixty-eight cases with nine deaths. The full report carries many interesting details and will appear in my annual report now nearly ready for the printer. At this time I shall only touch upon a very instructive portion dealing with the perplexing influence of a carrier and the outcome of the treatment given her.

The investigation quickly made it clear that the infection was in some way due to the milk supply. When this clue was followed out it led us to a certain vendor who had a milk farm a couple of miles outside the town. On this farm were seventeen persons, many of whom might have infected the milk. For all such the personal history as to typhoid fever or related diseases was altogether negative. It was, however, deemed prudent to make careful agglutination tests of the blood of each person on the farm who came in contact with the milk. Thus we found that a sister of the vendor gave a positive Widal reaction—so strong that it proved to be positive even with a titer of 1:800. Further laboratory tests gave negative cultures from the blood and urine, but from the feces a typical Bacillus typhosus was recovered. She had come to this milk farm at the beginning of April and had aided regularly in the evening milking which was found to be exclusively responsible for the outbreak, and had in a very limited way assisted at the morning milking.

Her story is peculiarly important. For a couple of years she had lived elsewhere in the county at some distance from the Newport district. Early in February her husband became ill of typhoid fever which, however, was not clearly diagnosed for almost two weeks, and she nursed him until his death nearly a week later. During this time she had carried on her household work and continued to be thus active until her removal to her brother's farm five weeks after the death of her husband. From her account of this illness it seems probable that the precautions calculated to prevent secondary infection were not taken, and she explicitly declared that she herself had been perfectly well during all these weeks and had not had even a headache.

Here then is a particularly clean-cut case of a carrier of typhoid bacilli who ordinarily would not arouse suspicion. Naturally, her condition as the quite innocent cause of a considerable epidemic and a possible source of further trouble, attracted much attention in Newport. Friends interested themselves in her behalf and an effort was made to procure special treatment for her in some hospital, that the stigma of being a typhoid carrier might be removed. After some inquiry Prof. Alfred Stengel indicated his willingness to see what could be done for her and about the middle of June she entered the University Hospital in Philadelphia for this purpose.

The examinations there made were a full confirmation of the results of the various examinations made in the Laboratories of the Department in May. I give a brief extract from a report of the ninth of July:

> "Widal strongly positive; blood culture sterile; culture of the urine sterile; three cultures of the feces; from the third was isolated an organism which culturally, morphologically, and in its agglutination reactions is identical with the typhoid bacillus. The organism is, however, non-motile. X-ray examination for gallstones negative. We consider the examination of the patient now progressed to the point where it is proper to attempt the elimination of the organism found at the last stool culture and the first method to be tried for this end is the use of kaolin."

The condition of Mrs. W. showed much improvement as was evident when she was visited by the Associate Chief Medical Inspector on the 29th of July, when she was still under treatment with kaolin. This treatment, however, did not prove to be satisfactory. An autogenous vaccine was then prepared and used with success. Concerning her further progress I make this excerpt from a letter sent by Doctor Stengel on the 21st of October:

> "We have been able to confirm the findings of your Department, and have since conducted a number of studies in the case,

> and have placed her upon treatment with the object of curing the condition. I am glad to be able to report that we have now had six successive negative stool cultures and we feel, therefore, that, for all practical purposes, the patient is ready for dismissal."

A few days later she returned to her home near Newport, and on the 28th of October an interested person wrote:—"She is delighted, her family and friends are pleased, and I am relieved."

That was almost eleven months ago and we are informed that she has since this treatment remained in good heatlh. About six weeks ago she was visited by the Assistant Medical Inspector of the Department who found her in excellent condition. Samples of her excreta was obtained and sent to the Laboratory for examination. The report returned was altogether negative, indicating that the outcome of the treatment of last year was permanent. (See final note.)

Last year in Lewistown and vicinity there were cases of typhoid fever which raised many questions. Lewistown is the county seat of Mifflin and its population ranges between eight and ten thousand according to the prosperity of the industries. In the Spring there were seventeen cases with onsets between the 13th and the 31st of May. Seventeen cases in a place of this size are not so many. It was rather the peculiar distribution of them that called for careful study. I cannot now ask you to listen to the petty details of an investigation which led to the conclusion that the infection came from a single dairy and that the distribution was due to the peculiar fashion in which the milk of this dairy was handled. No other evident cause for these cases could be found, although there were other conditions which at first suggested danger. The owner of this dairy had typhoid in October, 1906, or almost nine years before the trouble in 1915. It was inferred that the dairyman might be a carrier and the examination of a specimen of his stools was undertaken in June with an uncertain result. It later appeared, however, that this result was probably due to the improper preparation of the container in which the specimen was shipped. His blood serum was examined at the same time and was negative to the test of Widal.

The cause of this epidemic was thus in doubt and the milk dealer whose milk was under suspicion voluntarily stopped further sales and appealed to the local authorities to ascertain the facts in the case. Fortunately, that is fortunately for our present purpose, Lewistown had another small epidemic of twenty-one cases later in the year. This led to further investigation in November. Here again the milk of the same dairyman was inculpated and no other convincing explanation of the outbreak could be found. It was thought best again to send samples of his blood, urine, and feces to the Laboratories of the Department and the report was that while the blood and urine were negative, typhoid bacilli had been found in the stools. The status of this milk producer as a carrier was established and these two outbreaks at Lewistown were given a reasonable explanation as was also the occurrence of several cases a year earlier on a farm adjoining the dairy farm. Here was, quite possibly, a carrier whose carriership was intermittent or his alleged habit of carefully washing his hands before every milking may have been subject to lapses. It is still possible that he infected certain portions of the milk in some other way although it appeared to be the milk of his own milking which became infected.

I should also like to speak of the unfortunate career of a dairyman in Blair County although of an earlier date, but not published by the Department. On a farm near Roaring Springs almost eight years ago (November 1908) this man had a very mild attack of typhoid fever which was not reported, possibly not recognized, by his physician at the time. This particular occurrence has been the occasion of some discussion but the version given by the man himself to a medical representative of the Department a week ago. is that which I present.

Shortly after his speedy recovery he resumed his work as a dairy farmer. The next summer (1909) his milk went to a dealer of Altoona. In August and September there were in Altoona thirty-four cases of typhoid with three deaths traceable directly to this dealer and ultimately to the dairy farm under consideration.

An inspection was undertaken by the County Medical Inspector and the Health Officer of this township, from whose notes this story is taken in part. The conclusion was that the milk had become infected through cistern water polluted by a neighbor's privy. The producer was not at this time under suspicion as a carrier. The sale of the milk was then stopped pending certain changes which were to be made in the water supply. Presently the dairyman moved to another farm and began to ship his milk to a different retailer in Altoona. In July and August, 1910, there were in Altoona thirteen cases of typhoid with one death, again directly traceable to this milk. The sale of this milk in Altoona was then forbidden by the Board of Health until it should be determined whether the farmer or anyone else on the farm were a carrier. Hereupon the dairyman went out of business. A year later, October, 1911, he wished to resume dairy farming. At this time an examination of his stools showed typhoid bacilli, and accordingly he was not permitted to handle milk. In 1912, he stated that he had been treated by a physician who claimed to have cured him and said that the "germs" had dis appeared from his excreta. Other specimens, however, taken at this time and examined in the Laboratories of the Department as well as by Doctor Brumbaugh, of Altoona, still showed typhoid bacilli. The dairyman then gave up the dairy business for all time and has since worked in the railroad shops at Altoona. His health has been good ever since his attack of typhoid in 1908. He is now forty years of age. There had been no examination since 1912. Last week. however, another set of specimens of his excreta was obtained and sent to the Laboratories. A sample of his blood was also sent in but the report on the Widal test of that is negative. Yesterday came a further report from the Laboratories that no typhoid bacilli were found in the stools or urine. It may be that the career of this carrier has come to an end, but it will be wise to have one or two more examinations before we give him a clean bill of health and allow him again to take up dairying as he much wishes to do.

Just a year ago we had an outbreak of typhoid fever which was probably caused by a carrier although it could not be proved. On the occasion in question there was, in honor of a pair of aged parents, a family gathering which consumed only food that was brought in already cooked, with the exception of milk and coffee. Of the twenty persons concerned in this celebration six contracted typhoid fever and these were the only persons who drank milk freely at that time, no other article of food appearing to be at fault or thus definitely eaten. The family cow was milked daily by the mother of this family party, a matron of eighty-six. She had typhoid fever in 1905, ten years before, but was in good health with the exception of what was called "an attack of cholera morbus accompanied by diarrhoea" the day before the gathering. Samples obtained six weeks after the reunion did not reveal the presence of the Bacillus typhosus. This is not conclusive, as she may be a carrier who is only intermittently dangerous and her condition may have been unusually active because of the occurrence of diarrhoea at the time of the party.

Among the investigations which are published in the annual reports of the Department are many in which a carrier is believed to have played an important part. Let me refer briefly to three.

In the course of the epidemic at Troy, in the autumn of 1912, evidence was found of the possible pollution of the water supply by a man who had passed through a carefully supervised attack of typhoid early in the spring. Months after his recovery he worked as a harvest hand and frequently deposited his discharges in the fields from which they might easily be washed by the rain into the stream near by and thus find a way to the water supply of Troy. He was shown to be an intermittent carrier and the B. typhosus was recovered from his feces. It is difficult to see how this danger could have been anticipated except by assent to the general doctrine that after typhoid no man is harmless.

During the outbreak at Lehigh University in the autumn of 1914, the attention of our Associate Chief Medical Inspector was directed to a man who worked in the kitchen of the Commons and had a history which indicated that he might be a carrier. His blood serum gave a positive Widal reaction on three occasions during the month that he was under observation. His period of service with relation to the handling of food fell within the period of infection and no further infection occurred after his work was changed, a couple of weeks before he was dismissed as a suspect. The examination of his urine and feces was undertaken on four occasions in the course of two months, but under unfavorable conditions regarding the transport of the material to the Laboratories and the results were negative.

As a pathetic supplement to the milk-borne epidemic at Skippackville, which began in August, 1914, ocurred the development of a "carrier." A certain keeper of a boarding house became ill as did many of her boarders. The boarders went away but she was nursed by a clever daughter with care and skill, despite her lack of special training. After the mother had apparently fully recovered from her tedious illness of ten or twelve weeks the family moved to another village perhaps a dozen miles away. In their new home the mother at once became active in the kitchen and presently three cases of typhoid developed in the house, among them the daughter who had been the faithful nurse of the mother. This was of course one of those carriers who are active shortly after recovery and her condition need not have become permanent.

Important is a story from the Laboratory told in our annual report for 1913. Down in Bucks County, seven years before, in a certain H. family living on a dairy farm, several members had "typhoid fever" but all made good recoveries. After this event cases of atypical typhoid appeared now and then in the neighborhood, with no apparent cause for the infection. Finally it became obvious that these cases of typhoid occurred only among those supplied with milk from the H. farm. This naturally directed suspicion to this family and steps were taken to procure samples of the excreta for an examination in the Laboratory with reference to micro-organisms of the typhoid—paratyphoid group.

Specimens of the feces and the urine of each person were examined at two different times. The results for the father and children were negative, as was also the urine of the mother. From her stools, however, there was isolated an organism showing all the ordinary behavior of the Bacillus paratyphosus B. and this was corroborated by agglutination with the blood serum of a rabbit immunized with this kind of bacillus.

Such an event is no longer altogether novel, at least it has been known for some time that there are paratyphoid carriers as well as typhoid carriers; paratyphophors, if you like, as well as typhophors. They are, however, by no means common and constitute an unpleasant addition to an already complicated situation.

Let these cases suffice for today. Among the records of the Department are notes of many other outbreaks—not all of them small—in which the influence of a carrier was surmised but could not be positively shown. Such conditions are certain to recur and equally certain to be hard to detect.

The law passed by the General Assembly in 1915 makes possible the exclusion of typhoid carriers from the kitchen and from other work in hotels and restaurants. As this law becomes known the public may extend its application to private houses without the extension of the law itself. It is desirable that some similar law should be made to cover the case of a milk producer or distributor. Some such restrictions might be made effective if our municipalities required every vendor of milk within the limits of the municipality to prove that no carrier of typhoid germs had participated in the production or handling of the milk thus sold. Laws of this kind, however made, will be difficult to enforce. The handling of milk usually presents the possibility of infection through any one of a series of persons.

After all, may not the remedy finally be found in the spread of the knowledge that all who have had typhoid, however light the case, are potentially carriers, and in the development of what has been called the sanitary conscience, leading each such potential carrier to ask for an examination? Unfortunately even this development, almost indicative of the near approach of the millenium, will not reach the case of those persons who have become carriers without having any symptoms of the disease—typhoid carriers without typhoid. To reach these other measures will be needed.

Had we the time, something might be said about the importance of the carrier under other conditions. Our watersheds are already in many cases carefully inspected as to the existence of pollutions and we seek to abate such when found. These may be classed as permanent or domiciliary pollutions. There are other possible pollutions of watersheds which are temporary or transient in character and do not particularly attract attention. These are introduced by construction and repair gangs which work on our roads and elsewhere. In such gangs may be found persons who have had typhoid fever and among them are doubtless carriers. The number of such persons is at present an indeterminable quantity, and the extent to which they threaten the communities where they work cannot be estimated. Last year we had in Shippensburg an outbreak of typhoid fever of considerable dimensions—some two hundred cases. It was a clear case of water-borne disease. The original source of the infection has not been determined and probably never will be. At several places on the shed there had been two or three gangs variously employed, with obvious opportunities for pollution of neighboring streams. These gangs were shifting collections of men. In this particular instance some inquiry was made and two or three persons were found who admitted having had typhoid. These were all potential carriers and there may have been many more among those who denied any experience of the disease or who could not be questioned. I can not say that any of these men actually did infect the water supply of Shippensburg, but the possibility is there and is a matter of frequent occurrence elsewhere. It is a question that ought to receive serious consideration from the authorities of municipalities who now jeer and sneer when the suggestion is made that the watersheds of their water supplies need protection of this kind. Here the role of the carrier promises to be of growing importance.

Final note concerning Mr. W. (pages 5 and 6).

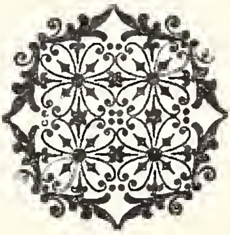
It is regretted that the typhoid carrier Mrs. W., who was believed to be cured by the treatment described in the report of her case, again has typhoid bacilli in her stools. An examination of a specimen of her feces made at the Department Laboratories in Philadelphia, during the present summer (1917), disclosed typhoid bacilli. This is a discouraging experience but unfortunately a very common one.

PENNSYLVANIA HEALTH BULLETINS

1.	July,	1909,	The Disease-Breeding Power of House-flies; Method of Prevention.
2.	Aug.,	1909,	Note on the Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept.,	1909,	The Family Physician.
4.	Oct.,	1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov.,	1909,	The Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, Bacillus Coli, and Bacillus Anthracis.
6.	Dec.,	1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan.,	1910,	Little Dangers to be Avoided in the Daily Fight against Tuberculosis.
8.	Feb.,	1910,	The Object to be Attained by the Medical Inspection of School Children.
9.	March,	1910,	Conservation of Human Life in Pennsylvania. The Results of Four Years' Work of the Department.
10.	April,	1910,	The Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May,	1910,	The Bubonic Plague, its Origin, Progress, and Means of Prevention.
12.	June,	1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July,	1910,	Experiments on Tubercule Bacilli, Old Tuberculin, and the Fluid of Dixon.
14.	Aug.,	1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept.,	1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct.,	1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov.,	1910,	Pennsylvania's Standing Army of Health.
18.	Dec.,	1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan.,	1911,	The Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb.,	1911,	Some Duties, Ideals, and Opportunities of the Country Doctor.
21.	March,	1911,	Malaria: How it is Caused, and How to Get Rid of it.
22.	April,	1911,	Health.
23.	May,	1911,	The Common Fly. How it Develops. Why it must be Destroyed, and How to Destroy it.
24.	June,	1911,	Effects of Products of Tubercle Bacilli on Epithelium.
25.	July,	1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug.,	1911,	Organization of the Pennsylvania State Department of Health.
27.	Sept.,	1911,	Tuberculosis, in the Country as well as in the City, a Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct.,	1911,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Heatlh.
29.	Nov.,	1911,	The Foundations of State Medicine.
30.	Dec.,	1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from Pulmonary Tuberculosis.
31.	Jan.,	1912,	The Baby, the Most Important Problem in Modern Life.
32.	Feb.,	1912,	Insects. The Common Forms in Relation to Public Health, and Methods for their Destruction.
33.	March,	1912,	The Opportunities for the Trained Nurse in Sanitary Service.
34.	April,	1912,	How to Organize a Baby-Saving Show.
35.	May,	1912,	Drowning.
36.	June,	1912,	The Health of Suburban Residences.
36½.	July,	1912,	Report of the Austin Disaster.
37.	Aug.,	1912,	Getting Close to the People. Caring for the School Children.
38.	Sept.,	1912,	Modern Medicine and the Physician.
39.	Oct.,	1912,	Battling for Health at Mont Alto.
40.	Nov.,	1912,	Tuberculin.
41.	Dec.,	1912,	Conservation of Health. An Address.
42.	Jan.,	1913,	Municipal Sanitation.
43.	Feb.,	1913,	Tuberculosis and our Schools.
44.	March,	1913,	The Relation of the Undertaker to the Public Health.
45.	April,	1913,	What State Control over Streams has done in Pennsylvania in Seven Years.
46.	May,	1913,	Troy Typhoid Fever Epidemic.
47.	June,	1913,	The Registration of Vital Statistics a Social Service.
48.	July,	1913,	Pennsylvania's Eugenic Marriage Law.
49.	Aug.,	1913,	Pennsylvania Health Legislation of 1913.
50.	Sept.,	1913,	Health and Education. An Address.
51.	Oct.,	1913,	Relation of Public Health to Industrial Welfare. An Address.
52.	Nov.,	1913,	Bathing.
53.	Dec.,	1913,	Results from the Injection of the Wax of the Tubercle Bacillus Indicating its Influence on Immunity and Susceptibility to the Tubercle Bacillus.
54.	Jan.,	1914,	The Waters of Pennsylvania. An Address.
55.	Feb.,	1914,	Reproduction and Race Betterment.
56.	March,	1914,	The State Tuberculosis Dispensary as a Social Service in Pennsylvania.
28.	Rev.Apr.	1914,	The Preparation of the Biological Products Distributed by the Pennsylvania Department of Health.
57.	May,	1914,	Insanitary Bath Tubs and Lavatories.
58.	June,	1914,	On Housing.
59.	July,	1914,	Medical and Sanitary Inspection of Schools of Fourth Class Districts in Pennsylvania.
60.	Aug.,	1914,	Progress in Preventive Medicine in Pennsylvania since the Creation of a State Department of Health.
61.	Sept.,	1914,	Certain Standards for Tuberculosis Dispensaries.
62.	Oct.,	1914,	On the Upfollow of Sanatorium Patients.
63.	Nov.,	1914,	Effective Rural Sanitation. End Results.
64.	Dec.,	1914,	Pennsylvania's System of Tuberculosis Dispensaries.
65.	Jan.,	1915,	Present Organization of the State Department of Health.
66.	Feb.,	1915,	Notes on Typhoid Fever in Pennsylvania for the Past Nine Years.
67.	March,	1915,	Epidemic of Typhoid Fever in Skippackville and Vicinity.
68.	April,	1915,	Diphtheria and Diphtheria Antitoxin.
69.	May,	1915,	Flies as a Factor in Infant Mortality.
70.	June,	1915,	Pennsylvania Health Legislation of 1915.
71.	July,	1915,	On the Medical Inspection of 469,000 School Children in Pennsylvania.
[illegible].	Aug.,	1915,	The Sanitary Engineer in Public Health Work.
[illegible].	Sept.,	1915,	Quarantine of the Home as Practised by the Department of Health.
[illegible].	Oct.,	1915,	An Address before the Pennsylvania Water Works Association.
75.	Nov.,	1915,	An Address at the Laying of a Corner-Stone in Pittsburgh.
76.	Dec.,	1915,	On the Prevalence of Typhoid Fever in Philadelphia in the Autumn of 1915.

77.	Jan.,	1916,	The Pennsylvania Department of Health Exhibit at the Panama-Pacific International Exposition.
78.	Feb.,	1916,	The Sanitary Index. A. Method of Measuring Public Health Work.
79.	March,	1916,	Proper Housing Means Cleanliness. An Address in the Conference of the Pennsylvania Housing and Town-Planning Association.
80,	April,	1916,	Pennsylvania and her Municipalities. An Address before the State Association of Boroughs.
81,	May,	1916,	The Department of Health Laboratory, and what it has done for the Physicians of the State. Read before the Schuylkill County Medical Society.
82.	June,	1916,	Fifteen Little Talks on Health and Hygiene.
83.	July,	1916,	Fifteen Little Talks on Health and Hygiene.
84.	Aug.,	1916,	Fifteen Little Talks on Health and Hygiene.
85.	Sept.,	1916,	Fifteen Little Talks on Health and Hygiene.
86.	Oct.,	1916,	Fifteen Little Talks on Health and Hygiene.
87.	Nov.,	1916,	Fifteen Little Talks on Health and Hygiene.
88.	Dec.,	1916,	Fifteen Little Talks on Health and Hygiene.
89.	Jan.,	1917,	Little Talks on Health and Hygiene.
90.	Feb.,	1917,	Little Talks on Health and Hygiene.
91.	March,	1917,	Little Talks on Health and Hygiene.
92.	April,	1917,	Little Talks on Health and Hygiene.
93.	May,	1917,	Insects.
94.	June,	1917,	Typhoid and Typhophors.

NOTE:—Owing to the exhaustion of the supply, Bulletins of the above list bearing the numbers:—7, 9, 10, 33, 39, 49, are no longer available for distribution.



End